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# PRACTICAL OBSERVATIONS

ON THE

# PRINCIPAL DISEASES

OF THE

# EYES:

## ILLUSTRATED WITH CASES.

TRANSLATED FROM THE ITALIAN

OF

*ANTONIO SCARPA,*

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*WITH NOTES,*

BY JAMES BRIGGS,

MEMBER OF THE ROYAL COLLEGE OF SURGEONS IN LONDON, AND ASSISTANT-SURGEON OF THE PUBLIC DISPENSARY.

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Je ſçais que la plûpart des chirurgi
des yeux; parceque elles ſont :
et que l'on croit qu'elles dema
une addreſſe toute ſinguliere p
viennent. Il n'eſt rien de tou
mais elles ſont trés-faciles à a
ſa profeſſion : elles n'ont poin
celles que l'on ſuit pour guéri
que l'on ait égard à la nature de l'œil ; et il n'eſt beſoin que d'une addreſſe médiocre, et d'un peu de jugement pour en faire les plus difficiles opérations. *Maître-Jan Traité des maladies de l'œil.*

T. Bensley, Printer,
Bolt Court, Fleet Street, London.

TO

JOHN PEARSON, Esq. F.R.S.

SENIOR SURGEON OF THE LOCK HOSPITAL AND ASYLUM,
SURGEON OF THE PUBLIC DISPENSARY, AND OF
THE INSTITUTION FOR INVESTIGATING
THE NATURE OF CANCER,
&c. &c.

As a ſmall Tribute of Gratitude for the uſeful Inſtructions,
and friendly Aſſiſtance which he has derived
from him in the Purſuit of his Studies,

And as a Teſtimony of Reſpect for his Talents and Erudition,
and of Eſteem for his Integrity,

THIS WORK

IS INSCRIBED BY

THE TRANSLATOR.

THE

# TRANSLATOR'S PREFACE.

THE comparatively ſlow advancement of ſurgery, in common with the other branch of medicine, is principally to be attributed to the great diverſity and extent of the facts upon which it is founded, and to their irregular and uncertain occurrence. But, independently of theſe obſtacles to its improvement, which are naturally inſeparable from the ſtudy of it, it would ſeem as if the ſlow progreſs of this department of the healing art had been in no inconſiderable degree owing to an imperfection in the manner of cultivating it; by ſurgeons either limiting their obſervations to the diſeaſes of ſome particular part of the body, or by directing their ſole attention to ſome particular diſeaſe.

Thoſe who have applied themſelves to the ſtudy of diſeaſes of the eye, have too frequently confined

themſelves to the mere conſideration of ſuch affections, without any regard to ſurgical diſeaſes generally; as if the diſorders of the eye had ſomething in their nature totally diſtinct from thoſe of other parts; or as if there were no analogy between ſimilar diſeaſes affecting different parts of the body. It has been frequently imagined likewiſe, that the operations which are performed upon the eye require greater ſkill or dexterity, than thoſe which are executed upon other parts of the body. And it has been rather upon ſome fancied improvement in the methods of operating, than upon any acknowledged peculiarity in the nature of the diſeaſes which affect this organ, that thoſe who have termed themſelves oculiſts, have generally reſted their pretenſions. Whether there be, however, any greater difficulty in theſe operations, than in thoſe which are executed upon the body generally, thoſe who have had the moſt extenſive opportunities of performing both, are beſt able to determine. It ought alſo to be recollected, that the term dexterity can ſcarcely be applied with propriety to ſurgical operations, in the ſame

ſenſe

ſenſe in which it is employed in the mechanic arts; the ſucceſs of an operation depending more upon a diſtinct knowledge of what ought to be done, than upon any adroitneſs in the performance of it.

The cuſtom of conſidering the diſeaſes of the eye as a diſtinct province of the healing art, and of confining the ſtudy of them to a few individuals, appears to be no leſs unfounded in nature, than prejudicial to the general advancement of ſurgery. Nor can any thing analogous to this be diſcovered in the other departments of ſcience, the principles upon which they are formed, being drawn from the moſt comprehenſive view of the objects which they embrace. If, indeed, we take a view of the improvements which have been introduced into this branch of ſurgery, we ſhall find that, they have been almoſt excluſively confined to thoſe, who, with extenſive opportunities of inveſtigating the morbid affections of the eye, have united an enlarged knowledge of other diſeaſes. And it is to this application of the general principles of ſurgery, and to a more correct anatomy, both of the

natural and diſordered ſtate of this organ, than has been hitherto attained, that the greater part of the diſcoveries contained in this work are to be attributed.

In attempting, therefore, to render the writings of an author more generally known, who has ſo greatly contributed to enlarge our knowledge of the diſeaſes of the eye, and to eſtabliſh the treatment of them upon the moſt rational principles, the tranſlator is unwilling to believe that any particular apology is neceſſary, or that his labour has been uſeleſs or miſapplied. His principal ſolicitude in the execution of it, has been to render it as cloſe an imitation of the original as the genius of the two languages would admit.

It has not been thought neceſſary to diſtinguiſh the notes which the tranſlator has added to it by any particular deſignation, ſince they are neither numerous nor important; and are in no danger of being confounded with thoſe of the very able author.

It was originally the tranſlator's intention to have ſubjoined to the work, the " additional obſervations"

obſervations" of the French editor, Monſ. Leveillè. Further conſideration, however, convinced him, that the greater part of the remarks contained in them, are to be found in writings which are acceſſible to moſt Engliſh readers; and that in this reſpect he would have departed from the author's original plan, who does not propoſe to offer a complete treatiſe of the diſeaſes of the eye, but only ſuch facts and obſervations as his extenſive practice has afforded him an opportunity of making in the moſt important of thoſe diſorders which affect the organ of viſion. The tranſlator, however, has availed himſelf of that gentleman's notes, which he has diſtinguiſhed by affixing his name to them.

As moſt of the names of the pharmaceutical preparations which the author has uſed in the courſe of the work are falling gradually into diſuſe, it has been thought proper, for the ſake of uniformity, to employ thoſe which are at preſent adopted by the London College.

It may be proper to mention, that the two principal errata which occur in the original work

work, and which ſhould have been incorporated in the tranſlation, unfortunately were not diſcovered, until that part of it was printed off in which they ought to have been inſerted.

THE

THE

# AUTHOR's PREFACE.

IN the practice of ſurgery, I have been uniformly in the habit of comparing my own obſervations with thoſe of the moſt eminent writers of every age; and I have been frequently gratified to find, in their writings, facts and obſervations which my own experience confirmed. It was only on the diſeaſes of the eyes, that in a very conſiderable number of caſes and variety of circumſtances, the reſults of my practice did not accord with their fair promiſes and ſpecious inſtructions, by following which I was very frequently diſappointed of the ſucceſs which I had expected. It has appeared to me alſo, that the greater part of modern ſurgeons who have written complete ſyſtems of ſurgery, or treatiſes on the diſeaſes of the eyes, have rather employed themſelves in collecting a number of formulæ of medicines, or in minutely detailing all the methods of operating which have been at any time propoſed for the cure of thoſe diſeaſes, than in determining, from obſervation and experience, which of the numerous remedies and

variety

variety of operative methods ought to have the preference. Profeſſed oculiſts, who have entirely devoted themſelves to this department of ſurgery, from whom great and important improvements might juſtly have been expected, have only contributed new theories, which for the moſt part have been diſproved by a minute anatomical inveſtigation of the eye, or they have merely furniſhed us with hiſtories of cures little leſs than miraculous. And it is to be regretted, that, even in the preſent day, ſome who have been regularly educated in ſurgery, no ſooner aſpire to the celebrity of oculiſts, than they immediately attach themſelves to the marvellous, and cannot be withheld from inſerting in their writings ſome trait leſs characteriſtic of the ſurgeon than the empiric; than which nothing can be more injurious to the welfare of mankind, to the advancement of ſurgery, and to the honour of him who practiſes it. Theſe inconſiderate promiſes being readily embraced by the young and inexperienced, who ignorant of the many, and ſometimes inſuperable difficulties which they have to encounter, proceed with ardour and intrepidity, and in the end embarraſs themſelves, to the prejudice of their own reputation and the ſafety of others.

The following obſervations, therefore, which are the reſult of my own practice and experience, have been publiſhed with a view to ſepa-

rate

rate from this important branch of ſurgery whatever is untrue or exaggerated, and to aſſiſt the young ſurgeon in the treatment of the more important diſeaſes of the eyes, not only by a ſelection of the moſt efficacious remedies hitherto known, but, as far as the preſent ſtate of our knowledge admits, of the moſt ſimple and uſeful methods of operating, in the ſeveral caſes in which they are requiſite. Diveſted of every prejudice, and having frequent opportunities of employing the moſt approved remedies, and the various modes of operating which have been hitherto propoſed for the cure of thoſe diſeaſes, which moſt frequently affect the organ of viſion, I have been made fully acquainted with the utility of ſome of theſe methods of treatment, and the inefficacy or imperfection of others, though equally commended and extolled; and on theſe points, therefore, I am enabled to pronounce definitively. In making theſe reſearches I ought to confeſs, that on ſeveral occaſions I could not but acknowledge the juſtneſs of ſome of the practical doctrines tranſmitted to us by the ancients, which have been entirely neglected by the moderns; as well as obſerve how unjuſtly ſome of their methods of operating have been diſcredited and laid aſide, to give place to others which experience proves to be greatly inferior.

Relin-

Relinquiſhing every hypotheſis which is inconſiſtent with the anatomical ſtructure of the eye, and practical obſervations on the diſeaſes of this organ, I have endeavoured to explain with conciſeneſs and perſpicuity thoſe appearances which I have obſerved to be moſt certain and conſtant, with reſpect to the nature of the diſeaſes that affect this important part of the human body, as well as the ſafeſt method of treating them. And, in order to render the methods of operating more intelligible to the young ſurgeon, I have thought it proper to add to the greater part of the chapters contained in the work, the detail of a ſmall number of caſes; expreſsly ſelecting from the great number, which I might have adduced under ſeveral of the heads, the hiſtories of ſuch as have been regiſtered in my practical ſchool of ſurgery, in the preſence of a great number of pupils. Examples without precepts are generally unintereſting, and precepts without examples are for the moſt part obſcure, and of little utility. I entertain, however, the fulleſt confidence, that whoever will exactly follow the plan of cure which I have laid down in the treatment of this claſs of diſeaſes, both with reſpect to the remedies and operations, will not only eaſily underſtand what I have advanced, but will alſo find that the event will generally, if not always, accord with what I have aſſerted;

which,

which, in the healing art, is the moſt that can be promiſed.

Nor am I diſpoſed to believe that the moſt able practitioners of the preſent day will regard this work as uſeleſs, merely becauſe it may probably not contain any thing which to them may be ſufficiently important or novel. Their correct judgment in the knowledge of diſeaſes, as well as the operations which are beſt ſuited to each of them, and the frequent opportunities which they have had of comparing, at the bedſide of the patient, the numerous remedies and methods of operating which have been propoſed for the cure of diſeaſes of the eyes, have doubtleſs led them, as well as myſelf, to eſtabliſh their practice on a ſolid baſis, and to make a ſelection of whatever is moſt certain and uſeful in the exerciſe of this branch of ſurgical ſcience. But this is not the caſe with the ſtudent who enters on this career, and ſtands in need of a faithful guide, to prevent him from being ſeduced by the oſtentatious promiſes of ſome, and the magiſterial precepts of others, who, attached to ſome particular opinion, founded only upon theory, or upon ſome particular and extraordinary caſe, have eſtabliſhed upon it a general rule.

It ought to be obſerved, however, that in writing this work I have not propoſed to give a complete treatiſe of the diſeaſes of the eyes, but only

only to ſpeak of the principal affections of this organ, which I have ſedulouſly and repeatedly attended to, ſince there are ſome which I have never met with; ſuch are, for inſtance, the prolapſus of the eye-ball, from external violence, the hypopion, without being preceded by an evident inflammation of the internal membranes of the eye, and, as it is called by metaſtaſis, the union of the internal membrane of the eye-lids with the eye-ball. I have not mentioned, beſides, the congenital or accidental coaleſcence of the eye-lids, the carbuncle of the eye-lids, wounds dividing the cartilage of the tarſus, extraneous ſubſtances introduced between the eye-lids or fixed in the eye, and other ſimilar accidents; becauſe, from the ſimple nature of theſe ſubjects, they do not admit of diſcuſſion, and becauſe they have been already explained with the greateſt preciſion and clearneſs by almoſt all the writers who have treated of them.

It will be ſeen, in many inſtances, that I have included diſeaſes in the ſame chapter, which, although treated of by the greater number of writers under ſeparate heads, are not in reality eſſentially different, and, notwithſtanding the diſtinct denominations which have been given to them, are nevertheleſs cured by the ſame remedies and the ſame operations. In ſpeaking of the artificial pupil alone, I have confined myſelf to the conſideration of that

that particular caſe of contracted or obliterated pupil, which occaſionally takes place, after the extraction or depreſſion of the cataract; principally in conſequence of the violent *internal* ophthalmia, excited by thoſe operations, becauſe my experience has not yet ſufficiently inſtructed me in the beſt method to be purſued in the other caſes of that diſeaſe.

For the ſame reaſon I have not entered into a deſcription of the cancer of the eye, ſince I have never met with more than two inſtances of this diſeaſe, which only ſerve to eſtabliſh a fact already ſufficiently known, the inefficacy of extirpating the eye-ball, whenever the cancerous diatheſis has, in the ſmalleſt degree, extended beyond the ball itſelf, or its appendages. The firſt of theſe caſes occurred in a boy 13 years of age, in other reſpects ſtrong and healthy, in whom, beſides the eye-ball being ſchirrous and projecting out of the orbit, there was a tubercle of the ſame nature ſituated between the internal angle of the eye-brow, and the root of the noſe. I extirpated the eye and removed every part within the orbit which was indurated, or diſeaſed, in the moſt careful manner, together with the tubercle ſituated between the ſupercilium and root of the noſe: every thing went on well, and the wound was completely healed. Two months after the child had returned home, which was in the province of Cremona, two

new indurated tubercles appeared in the cellular membrane of the ſupercilium of that ſide, towards the temples, and fungus afterwards germinated from the bottom of the orbit. This unfortunate child was then ſeized with continual pain in the head, afterwards with ſlow fever and general convulſions, which ſhortly terminated in death. The ſecond caſe was that of a man 50 years old, ſtrong, and in every other reſpect perfectly healthy, in whom the cancerous fungus had attacked, not only the eye-ball, but alſo a portion of the upper eye-lid. I removed the eye-lid with the greateſt poſſible exactneſs, cloſe to the arch of the orbit, where it appeared perfectly ſound, and along with it the globe of the eye, and all the other parts contained in the orbital foſſa. The cure went on very well until the 40th day, and the cicatrix gradually advanced from the external margin of the orbit towards the bottom of that cavity. In the midſt, however, of the moſt promiſing hopes the wound became ſtationary; a fungus began to appear in various points of the bottom of the orbit, which I endeavoured, but in vain, to deſtroy, firſt with the ſavin-powder, afterwards with the cauſtic; the patient was ultimately attacked with acute pains in the head, and by a kind of nervous fever, he became inſenſible and died.

For

For the greater advantage of ſtudents I have thought it neceſſary to add three plates. The firſt repreſents the via lachrymalia, and particularly the exact ſituation and extent of the lachrymal ſac. For as the perfect ſucceſs of the operation for the fiſtula lachrymalis depends greatly on the lachrymal ſac being laid open freely through its whole extent, from below the tendon or ligament of the *orbicularis palpebrarum* to the loweſt part of it, and on the inciſion being made exactly in the direction of its axis; it is neceſſary that the young ſurgeon ſhould know preciſely the true ſituation and direction of theſe parts; which perhaps would not be eaſily learnt from the plates which we have at preſent, ſince they conſiſt at moſt of ſmall ſections of the face, in which the relative ſituation of the via lachrymalia with the ſurrounding parts and the reſt of the head is loſt. The ſecond plate gives a repreſentation of ſome diſeaſes of the eyes, which appear to me never to have been accurately delineated. The third plate ſhows the inſtruments, which with the ſyringe of Anel, and thoſe of the pocket caſe, with which every ſurgeon is provided, form, in my opinion, the whole apparatus that the ſurgeon-oculiſt requires.

With the hope that this work may not prove uſeleſs or unintereſting, eſpecially to young ſurgeons, for whoſe uſe it is principally intended,

 I propoſe,

I propoſe, upon the ſame plan, to communicate ſucceſſively to the public, ſuch important obſervations or uſeful reſearches, as I may hereafter make in the other departments of ſurgery.

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# CORRIGENDA.

P. 24. l. 9. *after* ſlough *dele* reſembling cotton.
— 55. l. 6. f.b. —— whitiſh *dele* or cottony.
— 59. l. 12. —— ſubſtance *dele* reſembling cotton.
— 33. l. 6. *for* Ægnieta *read* Ægineta.
— 263. l. 4. f.b. — Ce morb. —— De morb.
— 188. l. 4. *after the words* bliſters to the neck, *add*, Schmucker imagines that a powder conſiſting of gr. vj of Rhubarb and ℈ j of nitre, taken every three hours, contributes greatly to reproduce the gonorrhœa, in conſequence of the diuretic property of theſe medicines.

P. 194. l. 20. *after the words* moſt frequent, *add:* A fact which for its conſtancy merits the attention of practitioners, is, that every *chronic ophthalmia*, whether ſcrofulous, variolous, morbillous, herpetic, or venereal, invariably affects the internal membrane of the eye-lids and the ciliary glands, in preference to the conjunctiva, which covers the anterior hemiſphere of the eye, while on the contrary the *acute ophthalmia*, from whatever cauſe or prediſpoſition it may be derived, conſtantly occupies in preference the conjunctiva of the eye-ball.

# PRACTICAL OBSERVATIONS, &c.

## CHAP I.

### OF THE PURIFORM DISCHARGE OF THE PALPEBRÆ, AND OF THE FISTULA LACHRYMALIS.

SURGEONS are generally agreed that a *fiſtula lachrymalis* exiſts, whenever a diſcharge of a viſcid, curdly, yellowiſh matter, reſembling pus and mixed with tears, iſſues from the *puncta lachrymalia*, on compreſſing the ſpace ſituated between the internal canthus of the eye and the noſe.

If the term *fiſtula lachrymalis*, when applied to the diſeaſe of which I am about to treat, were a mere verbal inaccuracy, and had no influence on the diagnoſis and treatment of the complaint, it would be a matter of little importance: but, ſince it involves a real error, and one which may eaſily miſlead the young ſurgeon in the diagnoſis and treatment of this and other diſeaſes of the *via lachrymalia*, I think it neceſſary that ſome diſtinction ſhould be made between theſe two morbid affections. Whenever, therefore, on preſſing the lachrymal ſac, though in other reſpects in a ſound ſtate, a viſcid, curdly, yellowiſh matter, reſembling pus, flows from the *puncta lachrymalia*, I give to

 that

that morbid ſtate of the *via lachrymalia* the appellation of the puriform diſcharge of the palpebræ; and I would reſtrict the term *fiſtula lachrymalis* to that form of diſeaſe, in which the lachrymal ſac is not only greatly diſtended, but ulcerated, and in a fungous ſtate on its internal ſurface, where there is likewiſe an external opening, which is ſometimes accompanied with a caries of the *os unguis*.

The viſcid, curdly, yellowiſh humour mixed with the tears, which in the firſt inſtance flows back again through the *puncta lachrymalia*, is not wholly produced by the ſac, as is commonly believed; but is for the moſt part tranſmitted to it from the eye-lids by the *puncta lachrymalia*, from which it regurgitates, and conſequently appears again upon the eye and eye-lids whenever the ſac, which is gradually filled with this humour, happens to be preſſed upon. This puriform humour is principally furniſhed by the internal membrane of the palpebræ, and comes more particularly from the lower eye-lid along the tarſus, and from the glands of Meibomius: the ſebaceous matter peculiar to theſe glands being not only ſecreted in larger quantity, but alſo acquiring an acrid and irritating quality. This morbid ſtate of the ſebaceous glands is very frequently derived from a catarrhal flux, from a ſcrofulous taint, from the ſmall pox, and from cutaneous eruptions improperly repelled. In addi-

tion

tion to the ſebaceous matter which is copiouſly ſecreted by theſe glands, a quantity of thin mucus is poured out from the internal membrane of the palpebræ, which greatly contributes to increaſe the quantity of viſcid humour which, in theſe caſes, is diffuſed over the eye and eye-lids.*

That the puriform humour which iſſues from the lachrymal ſac on the application of preſſure originates from theſe ſources, is rendered evident by everting the affected eye-lids, particularly the inferior one, and comparing them with thoſe of the ſound ſide. For the internal membrane of the former is invariably found redder than natural, and preſents a villous appearance, eſpecially along the tarſus; the edge of the eye-lid is tumefied and diſcoloured with innumerable ſmall varicoſe veſſels; the glands of Meibomius are more turgid and projecting than in a natural ſtate, and not unfrequently, when examined with a powerful glaſs, appear to be ſlightly ulcerated.

This villous ſtructure, then, which the ſurface of the internal membrane of the palpebræ aſſumes in theſe caſes, becomes an organ, ſecreting a larger quantity of fluid than uſual, reſembling viſcid lymph, which being mixed with the ſebaceous matter, copiouſly effuſed from the glands of Meibomius, conſtitutes the

* Rudolphus Vehrens has called this diſeaſe *Epiphora Sebacea*. See Haller's addenda to Boerhaave's *Methodus Studii Medici*.

whole of that tenacious fluid with which the eye-lids are imbued, and which is continually carried by the *puncta lachrymalia* into the sac, so as to fill, and sometimes even distend, that cavity enormously.

If indeed the lachrymal sac is emptied of this matter, by means of compression, and the eye and internal surface of the palpebræ are carefully washed, so that none of the glutinous humour pressed from the sac shall remain upon them, and the eye-lids are everted half an hour afterwards, the internal surface, especially of the lower one, will be found covered with a fresh effusion of mucus mixed with sebaceous matter, which has evidently not flowed back from the lachrymal sac towards the eye, but has been generated between the eye and the palpebræ, having been there poured out by the villous surface of their internal membrane, and the glands of Meibomius. That the internal membrane of the palpebræ assuming a fungous or villous appearance, changes its natural functions, and becomes an organ secreting an immoderate quantity of mucus, we have an instance in that species of puriform discharge of the palpebræ, produced by the incautious application of the matter of gonorrhea to the edges of the eye-lids. For in this case the eye and palpebræ are first of all inflamed, the internal membrane of the latter then becomes tumefied, and assumes a villous

lous appearance, and a prodigious quantity of viſcid, yellowiſh humour, is afterwards poured out, ſimilar to that which is diſcharged from the urethra in a venereal gonorrhœa.

In the puriform diſcharge of the palpebræ, however, of which I am treating, and which is commonly met with in practice, the ſecretion of mucus from the internal membrane of the eye-lids, and the glands of Meibomius, is not ſo conſiderable as in that ariſing from the application of the matter of gonorrhœa; nor is it always preceded like that with ſymptoms of the moſt violent inflammation. In general it takes place ſlowly, and in proportion as the puriform fluid is ſecreted, it partly lodges upon the eye and palpebræ, and partly deſcends through the *puncta lachrymalia* into the ſac, where being accumulated, it inſtantly flows back upon the eye when any preſſure is made upon that cavity.

As a further proof that the lachrymal ſac has no other ſhare in this diſeaſe than that of receiving, together with the tears, the puriform humour which is tranſmitted to it from the affected palpebræ, it is ſufficient to obſerve, that if the morbid ſecretion of the eye-lids is retarded or ſuppreſſed, either accidentally or by means of external applications, little or none of this viſcid curdly humour is collected in the lachrymal ſac, or can be forced from the *puncta lachrymalia* by the application of preſſure. In-

deed, if in the higheſt degree of this diſeaſe the eye-lids are accidentally attacked with inflammation, as in the caſe of eryſipelas of the face, the effect of which, as of all other inflammations, is to ſuppreſs every kind of ſecretion in the parts affected with it, the accumulation of puriform matter in the ſac ceaſes altogether, which returns as ſoon as the inflammation of the palpebræ has abated, and the morbid ſecretion of their internal membrane, and of the glands of Meibomius, is reproduced. I have frequently aſcertained that the ſame effect is produced when an inflammation of theſe parts is artificially excited, by the introduction of any ſtrongly-irritating ſubſtance between the palpebræ and the ball of the eye: as I have alſo conſtantly obſerved that the puriform diſcharge may be radically cured by merely correcting, at an early period, the morbid ſecretion of the internal membrane of the palpebræ, and of the ſebaceous glands ſituated along the tarſus.

If, however, notwithſtanding what has been advanced, ſome may yet be inclined to believe that the puriform humour in this diſeaſe is rather formed by the internal membrane of the ſac than the palpebræ, it may not be improper for them to conſider, that the internal membrane of the lachrymal ſac is exactly ſimilar to that which lines the frontal and ethmoidal ſinuſes, being a very delicate membrane entirely deſti-

tute of ſebaceous glands, and fitted to ſecrete a thin mucus, but not a ſebaceous, unctuous matter, ſuch as that which in this diſeaſe forms ſo conſiderable a part of the fluid which iſſues from the lachrymal ſac. It is not, indeed, improbable that a ſmall part of the thin mucus which lubricates the internal membrane of the ſac may be mixed with the puriform humour tranſmitted to it by the *puncta lachrymalia*; but we are not warranted to aſſert from thence that the principal part of the puriform humour is formed in the ſac.

If the origin therefore of this diſeaſe be not principally in the lachrymal ſac, but in the internal membrane of the palpebræ, and in the ſebaceous glands of Meibomius, it is very evident how much they are miſtaken who confound this diſeaſe of the *via lachrymalia* with the *fiſtula lachrymalis*; and conſequently, how improperly they propoſe in the treatment of the puriform diſcharge of the palpebræ to heal an ulcer of the internal membrane of the ſac, which does not exiſt, or to open a paſſage for the tears into the noſe by the dilatation of the naſal canal, which they imagine to be entirely, or in a great meaſure, obſtructed. For in theſe caſes, the naſal canal cannot properly be ſaid to be obſtructed, unleſs either relatively with reſpect to the denſity and tenacity of the puriform matter, which attempts to paſs from the

palpebræ towards the cavity of the noſtrils, or becauſe the irritation which this matter produces, in the courſe of the *via lachrymalia*, occaſions a ſlight degree of thickening, or tumefaction of the membrane of the noſtrils which lines the naſal canal.

And in order to proceed with this ſubject in as clear a manner as poſſible, upon which, it ſeems unfortunately, the more that has been written, the greater has been the obſcurity and doubt which has been introduced into it, I have thought it proper to divide the puriform diſcharge of the palpebræ into four ſtages. The firſt, is that in which the puriform oily mucous matter, ſecreted by the internal membrane of the palpebræ and the glands of Meibomius, is carried into the lachrymal ſac, and accumulates there; but deſcending eaſily through the naſal canal is for the moſt part diſcharged into the noſe, and occaſions no manifeſt diſtenſion of the ſac, which, when compreſſed, only gives iſſue to a moderate quantity of viſcid matter. The ſecond ſtage of the puriform diſcharge of the palpebræ, is that in which the matter flowing from the eye-lids not being entirely diſcharged, or without great difficulty into the noſe, from its exceſſive quantity and denſity, as well as from the tumefaction of the internal membrane of the naſal canal, produces gradually, and in the courſe of ſome years,

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a conſiderable diſtenſion of the lachrymal ſac, ſo as to deſtroy its natural elaſticity, and cauſe it to project in the form of a tumour. The third ſtage, is that in which the viſcid matter, in conſequence of its abundance, denſity, and acrimony, and perhaps ſtill more from its exceſſively diſtending the parietes of the lachrymal ſac, cauſes an inflammation, eroſion, and ſuppuration of that cavity, and of the integuments covering it; and thereby occaſions an ulcer of the *via lachrymalia*, extenſive internally, but narrow externally, from which is diſcharged a mixture of puriform matter and true pus. This third ſtage of the puriform diſcharge of the palpebræ, is that to which the term *fiſtula lachrymalis* properly belongs, eſpecially if the ulceration has been for a long time neglected, or improperly treated. Laſtly, the fourth ſtage of this diſeaſe, is the ſame as the *fiſtula lachrymalis*, but accompanied with a caries of the *os unguis*.

From the conſideration of this ſeries of progreſſive ſtages of the puriform diſcharge of the palpebræ, the difference between this diſeaſe and the *fiſtula lachrymalis* muſt be very obvious, and conſequently what is the true and principal origin of the latter. And ſince, from what has been ſtated, the primary and principal cauſe of the *fiſtula lachrymalis* does not exiſt either in the ſac or the naſal canal, as it has been hitherto believed,

believed, but in the morbid ſtate of the palpebræ, it muſt neceſſarily follow that every method of treatment of the *fiſtula lachrymalis*, which is merely directed to heal the ulceration of the ſac, or to overcome the obſtruction of the naſal canal, can never effect a permanent cure of this diſeaſe, unleſs ſuch practice be conjoined with other meaſures which are calculated to correct effectually the morbid ſecretion of the palpebræ, from which the *fiſtula lachrymalis* is derived.

With reſpect to the treatment of the firſt ſtage of the puriform diſcharge of the palpebræ, when it is recent, and when the viſcid humour tranſmitted from the palpebræ through the *puncta lachrymalia* into the ſac, though it is ſomewhat detained in the latter, does not however diſtend it ſenſibly, nor elevate it externally, the cure may be effected without having recourſe to the diviſion of the ſac, or any other painful operation. The plan of treatment under ſuch circumſtances conſiſts in reſtraining the immoderate ſecretion of the glands of Meibomius, and internal membrane of the palpebræ, and at the ſame time in aſſiduouſly waſhing the *via lachrymalia* through their whole extent, in order to prevent any of the acrid, ſebaceous, and grumous matter from lodging in them.

This may be obtained by means of ſtimulating and aſtringent medicaments applied to the

the margin and internal membrane of the palpebræ, and by deterſive injections thrown into the *puncta lachrymalia*. The beſt local, ſtimulating, and aſtringent remedy in this caſe, is the opthalmic ointment of Janin,* employed at firſt with a larger quantity of lard than is directed in the formula, until the patient's eye is accuſtomed to this kind of ſtimulant; a portion of this ointment, equal to the ſize of a barley-corn, ſhould be introduced upon the point of a blunt probe morning and evening, between the palpebræ and ball of the eye, near the external angle, and the whole margin of the eye-lid ſmeared with it; the patient ſhould then be directed to cloſe the eye, and rub the palpebræ gently, ſo that the ointment may be equally diſtributed upon the whole of their internal ſurface; a compreſs and bandage ſhould be applied over it, and the patient deſired to keep his eye-lids cloſed in this manner during two hours. At the expiration of this time, the eye ſhould be waſhed with cold water, and a few drops of a collyrium, conſiſting of four ounces of plantain water, five grains of vitriolated zinc, and half an ounce of the mucilage

* Take of hog's lard half an ounce, prepared tutty and armenian bole, of each two drams, white precipitate, (calx hydrarg. alba) a dram. The hog's lard, having been waſhed three times in roſe water, ſhould be intimately mixed in a glaſs mortar, with the other ingredients previouſly reduced to a fine powder. *Memoires ſur l'Oeil.*

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of quince-ſeed, ſhould be inſtilled into the eye three or four times in the courſe of the day.

When, in addition to the affection of the glands of Meibomius, and the villous appearance of the internal membrane of the palpebræ, there are ſmall ſuperficial excoriations upon the edges of the eye-lids, it will be advantageous to employ at the ſame time the *unguentum nitratis hydrargyri* of the Edinburgh Pharmacopœia. This remedy ſhould be uſed by warming it a little in a ſmall veſſel till it liquifies, and then with the point of the finger ſmearing it upon the edges of the eye-lids at the time when the patient goes to bed. If this ſhould be inſufficient, recourſe muſt be had to the *argentum nitratum*, as employed by S. Yves, which ſhould be drawn gently along the edges of the palpebræ, waſhing the eye immediately afterwards with new milk.

In order to preſerve the canal in a permeable ſtate, the ſurgeon, previouſly to the uſe of the ſtimulant and aſtringent applications, ſhould inject diſtilled plantain water, rendered more active by the addition of a little ſpirit of wine, through the *puncta lachrymalia*, morning and evening, by means of Anel's ſmall ſyringe; and this injection ſhould be repeated at each time of dreſſing the eye, until it is evident that the fluid thrown into the *puncta lachrymalia* has paſſed into the noſtril.

The phænomena which uſually preſent themſelves

ſelves during the treatment of the firſt ſtage of the puriform diſcharge of the palpebræ, are the following: The ſecretion of puriform matter is at firſt more copious than before, provided the irritation produced by the ointment does not exceed certain limits, and occaſion an inflammation of the palpebræ.* The edges of the eye-lids, eſpecially of the inferior, which before were tumefied and rigid, now become gradually thin, ſoft, and flexible; the glands of Meibomius inſenſibly diminiſh, and the internal ſurface of the palpebræ, which had previouſly a villous appearance, and was almoſt in a fungous ſtate towards the margin of the eye-lid, gradually recovers its natural ſmoothneſs, and becomes pale. As theſe favourable changes ſucceed each other on the internal ſurface of the palpebræ, the puriform diſcharge diminiſhes in quantity, and from being viſcid, tenacious, and grumous, becomes thinner and more fluid, and no longer imbues the palpebræ and cilia. If the ſac be compreſſed afterwards at different intervals, there only iſſues from the *puncta lachrymalia*, a diſcharge of turbid tears; and finally, when the natural ſecretion of the palpebræ is

* In order that this remedy may produce its proper effect, however, it is neceſſary that it ſhould induce a certain degree of irritation exciting a little warmth and redneſs in the palpebræ and *conjunctiva*, during the whole time it remains upon the eye.

entirely

entirely reſtored, the regurgitation of puriform matter ceaſes altogether, or there is only a diſcharge of a few pure and limpid tears. Theſe advantages are obtained for the moſt part in ſix weeks, if there be no obſtinate cauſes depending on the patient's general conſtitution, which, towards the end of the treatment, occaſion a return of the diſeaſe, as too frequently happens in thoſe who are in the laſt ſtage of ſcrofula, eſpecially on the approach of ſpring and autumn, or in thoſe who are otherwiſe unhealthy, or who have been affected with a ſevere *variolous metaſtaſis* to the eyes. Theſe caſes require a longer continuance of the treatment than the others, although a cure may be ultimately obtained, if, in conjunction with the external means already mentioned, a ſeton is made in the neck, and ſuch internal remedies employed as are ſuited to correct the morbid prediſpoſition. Of theſe I ſhall have occaſion to ſpeak in the chapter on Ophthalmia.

From theſe principles relative to the firſt ſtage of the puriform diſcharge of the palpebræ and the method of treating it, we are enabled to form a correct judgment of the caſe related by Fabricius Hildanus, in his Cent. IV. Obſ. XX. of a lady about thirty years of age, who had been afflicted with a *fiſtula lachrymalis* for two years, which he cured in four months, merely by making a ſeton in the neck, and by the frequent

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uſe of an appropriate collyrium. This caſe of *fiſtula lachrymalis* of which Fabricius ſpeaks, appears to have been only a puriform diſcharge of the palpebræ, which, although of two years ſtanding, had not proceeded beyond the firſt ſtage; and in conſequence of the determination made to the neck and the action of the collyrium, which was probably aſtringent, applied to the eye-lids, the puriform diſcharge was ſuppreſſed, and conſequently ceaſed to taint the eye, and obſtruct the *via lachrymalia*. A great number of ſimilar examples may be met with both among ancient and modern writers on the diſeaſes of the eyes, which have been improperly conſidered as caſes of *fiſtula lachrymalis*.*

As the diſeaſe in this firſt ſtage does not produce any remarkable pain or tumefaction in that part of the integuments ſituated between the internal angle of the eye and the noſe, and only occaſions a ſlight weeping of the eye in the day-time, and during the night, ſome degree of coheſion of the eye-lids; and as this diſcharge of tears becomes even more tolerable to the patient, if he have the precaution to preſs occaſionally upon the internal canthus of the eye,

* I have very frequently ſeen, ſays Pott, caſes of incipient *fiſtula lachrymalis* cured merely by means of a good diet, and the application of the vitriolic collyrium.

*Obſerv. on the Fiſt. Lachrym.*

and

and to force the puriform matter confined in the ſac back again through the *puncta*; ſo it very frequently happens, that not only the lower claſſes of people, but alſo the more opulent, neglect this form of the diſeaſe for a conſiderable length of time, and ſeldom have recourſe to ſurgical aſſiſtance, until the diſeaſe has arrived at the ſecond ſtage, or when it is accompanied with diſtention and manifeſt tumefaction of the lachrymal ſac; for the cure of which, beſides the local remedies already enumerated, it is requiſite to perform a ſurgical operation.

For, in the ſecond ſtage of the puriform diſcharge of the palpebræ, when the viſcid matter, ſecreted by the eye-lids, has gradually, and, in the courſe of ſome years, diſtended the ſac, and elevated it externally in the form of a tumour, although the primary indication which the ſurgeon ought to fulfil, be, in every period of this diſeaſe, to correct the morbid ſecretion of the palpebræ, yet the fulfilment of it, under theſe circumſtances, is not alone ſufficient to effect a complete cure of the diſeaſe, on account of the atony or flaccidity ſuperinduced upon the membranes of the lachrymal ſac, which requires the employment of appropriate means. This circumſtance demands the greater care and attention, as in the firſt place the diminiſhed vitality of the membranes of the lachrymal ſac, in conſequence of the diſ-

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tenſion which they have ſuffered diſpoſes them, as well as the integuments, to ulcerate from the ſlighteſt attack of inflammation in the ſurrounding parts; becauſe, in the ſecond place, although the morbid ſecretion of the palpebræ be perfectly corrected, yet, whenever the lachrymal ſac remains conſiderably dilated, ſo that the tears are retarded in it, the further diſtention and dilatation of it, and conſequently the perpetual weeping of the eye, are inconveniences abſolutely inevitable. It is evident, that to avoid this diſcharge of tears, it is not only neceſſary that the naſal canal ſhould be ſufficiently open into the cavity of the noſtrils, but alſo that there ſhould be a certain proportion between the caliber of this canal and the capacity of the lachrymal ſac; otherwiſe, if the latter exceed its uſual dimenſions, the tears poured into it from the *puncta lachrymalia*, as all fluids propelled through narrow tubes into large ones loſe much of the motion originally communicated to them, are retarded, accumulate in the preternaturally dilated ſac, and conſequently flow back upon the eye; nor is the weight of the tears alone ſufficient to make them deſcend through the naſal canal and diſcharge themſelves into the noſe, in the ſame quantity in which they are abſorbed and poured by the *puncta lachrymalia* into the ſac.

To fulfil this indication, that is, to prevent

the accumulation of the puriform matter and tears in the distended sac, which all surgical writers have considered as important, it has been proposed to make use of astringent lotions, consisting of a strong solution of alum in the infusion of oak-bark; others have suggested a firm and long-continued pressure upon the dilated sac, by means of a small instrument resembling a tourniquet. Both these methods are, however, altogether inadequate to the purpose, for several reasons, which it is of little importance at present to examine. The only method of treatment which has been found really efficacious, is that of making an incision into the sac, and introducing into it such remedies as are calculated to constringe its cavity, either by restoring the actions of its membranes, or diminishing their extent, principally by the use of caustic applications.*

For

* A case of this second form of the disease lately occurred at the Public Dispensary, in which the lachrymal sac was immoderately distended, and the integuments covering it discoloured and tender to the touch, yet by merely employing the *unguentum hydrarg. nitrat. mitius*, which was introduced between the eye-lids twice a-day, and directing the patient to empty the sac as often as there was any accumulation of matter in it, by pressing upon it with the finger, the symptoms gradually disappeared, and the disease in the course of some weeks was removed; a slight discharge of tears, however, occasionally took place whenever the eye was exposed to cold air.

For the cure then of the ſecond ſtage of the puriform diſcharge of the palpebræ, or when it is attended with a conſiderable dilatation of the lachrymal ſac, the patient being ſeated, and his head properly held by an aſſiſtant, the ſurgeon ſhould direct him to cloſe his eye-lids, and gently preſſing upon thoſe of the affected ſide with the index and middle finger of one hand, with the other he ſhould carry the point of a ſtraight biſtoury immediately below that ſmall whitiſh ſpot of the integuments, which is naturally ſeen on the ſide of the noſe, a little below the internal commiſſure of the palpebræ, covering the tendon or ligament* of the orbicular muſcle; and preſſing the knife freely forwards, muſt penetrate the cavity of the lachrymal ſac; he ſhould then continue the inciſion from above downwards, in the direction of the fold which the lower eye-lid makes at that part, and which nearly correſponds to that of the *oſſeous ſulcus* in which the lachrymal ſac is ſituated.†

And, to make the operation fully ſucceed, if the ſurgeon is ambidextrous, he ſhould open the lachrymal ſac of the left ſide with his right

air. This inſtance would ſeem to prove that, however judicious the operation here propoſed by Profeſſor Scarpa may be, in the generality of caſes, it is not abſolutely neceſſary in all. And the propriety of proceeding to any operation before ſuch meaſures have been employed, may be reaſonably doubted.

* Plate I. c. † Plate I. c. b.

hand, and *vice verſa* that of the right ſide with his left hand, when the diſeaſe is on that ſide: always taking particular care that the point of the biſtoury fall perpendicularly upon the *os unguis*, and never paſs obliquely from without inwards, between the margin of the orbit and the globe of the eye. In performing this operation the young ſurgeon ſhould, in no inſtance, depart from the rule here laid down, of commencing the inciſion of the ſac, by plunging the point of the biſtoury immediately below the whitiſh ſpot of the integuments, which is ſeen between the internal angle of the eye and the noſe. For in morbid dilatations of the ſac, which are always attended with tumefaction of the neighbouring parts, the uncertainty of penetrating with preciſion into that cavity, and of extending the inciſion accurately in the courſe of it is ſo great, that even the beſt anatomiſts may, by not paying attention to this circumſtance, eaſily get out of the direction of the ſac, or not open it in the moſt convenient manner requiſite. Under this ſmall whitiſh ſpot of the integuments, the ſac never deviates from its natural poſition, however diſtended and altered by diſeaſe, ſince it is firmly confined in its ſituation at this part by the ligament of the orbicularis muſcle. When the point of the biſtoury has fairly penetrated the upper part of the cavity of the ſac, the reſt of the inciſion

may

may be executed without difficulty, by following the direction of the inferior arch of the orbit where the natural fold of the eye-lid has been effaced by the tumefaction of the ſac. The practice of laying the ſac open through its whole extent * is of the greater importance for obtaining a complete cure of the diſeaſe, as by this method only are we enabled to make ſuch applications to it as are neceſſary; and experience has proved, that a ſmall inciſion of the ſac, only ſufficient to admit a ſeton or tent through it into the noſe, does not fulfil the original intention for which it ought to be made.

The ſac being divided longitudinally, ſo as to expoſe the whole of its internal ſurface, the ſurgeon ſhould introduce into the loweſt part of it a moderate ſized probe, which he ſhould puſh through the naſal canal into the correſponding noſtril, giving the inſtrument a ſlight inclination from without, inwards. After having withdrawn the probe, he ſhould introduce into the naſal canal a bougie of a proper thickneſs, an inch and a half long in the caſe of an adult, preſſing it gently forwards, until the extremity which has entered the noſtril, is incurvated towards the fauces, and the other end being ſecured by a waxed thread, has deſcended ſo deeply as to be concealed at the loweſt part of the lachrymal ſac, and preciſely at the entrance

* Plate I. c. b.

of the naſal canal; in ſhort, that the bougie may preſerve the dilatation of the naſal canal without occupying any part of the cavity of the lachrymal ſac. A piece of elaſtic gum tent, of an equal length and thickneſs, anſwers extremely well, inſtead of the bougie, both on account of its great ſmoothneſs and flexibility. A bougie, or elaſtic gum tent, an inch and a half long, for an adult, is preferable to one ſhorter, and only proportioned to the length of the naſal canal; as the one being incurvated in the noſtril towards the fauces, remains conſtantly in its ſituation at the loweſt part of the ſac, and is entirely concealed in the naſal canal, while the other by its ſhortneſs is eaſily forced upwards and outwards through the inciſion, and prevents the dreſſings from remaining long at the bottom of the ſac. Nor is it a matter of indifference whether the paſſage of the naſal duct be preſerved open or not, during the whole time required for the cure of the diſtended and flaccid ſac; as we know from experience the great tendency which there is in the canals and excretory ducts of the animal body, to contract and become obliterated, when the fluid which they are accuſtomed to convey ceaſes, even for a ſhort time, to paſs through them. Of this we have an inſtance in the fiſtula of the parotid duct, the anterior portion of which, no longer

longer receiving any ſaliva from its appropriate gland, very ſoon contracts and cloſes itſelf.

Having thus filled the naſal canal, the ſurgeon ſhould examine the whole preternatural extent of the lachrymal ſac, with a bent probe, eſpecially that part of it which is ſituated above the tendon of the orbicular muſcle,* and which has not been included in the inciſion; this will ſerve him as a guide for calculating afterwards the progreſs of the contraction of the whole ſac, which is the principal object in the treatment of the ſecond ſtage of the puriform diſcharge of the palpebræ. Laſtly, the whole cavity of the lachrymal ſac ſhould be filled with ſoft lint, which ſhould be retained in its ſituation by means of a compreſs and the monoculus bandage.†

On the third day, if the lips of the wound have begun to ſuppurate, the dreſſing ſhould be renewed; and this ſhould conſiſt in waſhing the wound, and filling again in the moſt exact manner the bottom of the cavity of the dilated lachrymal ſac, with ſoft lint dipped in a liniment, conſiſting of the hydrargyrus nitratus ruber and mucilage of gum-arabic. This eſcharotic is very gentle in its action, and correſponds to what are commonly called mild or *indolent cauſtics:*

* Plate I. a.

† For the deſcription and method of applying this bandage, ſee Heiſter's Surgery, Part III. ſect. i. p. 357.

it gives the patient little uneaſineſs, and produces daily a greater contraction of the lachrymal ſac: whether it effects this by ſimply ſtimulating it, or by promoting an abundant diſcharge of humour, with which, in this ſecond ſtage of the diſeaſe, the membrane forming the ſac is loaded, the fact is, that at every application the doſſil of lint, introduced into the cavity of the ſac, is covered with a whitiſh ſlough reſembling cotton; and that by perſiſting in this treatment the capacity of the ſac is gradually diminiſhed.

If it ſhould appear to reſiſt theſe applications the whole cavity of the ſac ſhould be filled with the hydrarg. nitrat. ruber, either alone or mixed with a little alum, and ſhould be alſo repeatedly touched with the argentum nitratum, if neceſſary. By means of theſe powerful eſcharotics the internal ſurface of the ſac will be reduced to the ſtate of a ſimple ulcer, the healing of which muſt be neceſſarily attended with a correſponding contraction of its cavity.

The moſt ſcrupulous attention ought to be paid at each dreſſing, that the external edges of the wound are kept open, and only ſuffered to contract in proportion to the reſt of the ſac, either by the introduction of lint or ſponge. While theſe means are employed for the purpoſe of reducing the ſac to its natural ſize, it will be proper to introduce between the

the eye-lids, morning and evening, the ophthalmic ointment of Janin, and to direct the patient to inſtil into the eye a few drops of the vitriolic collyrium three or four times a-day, in order to correct the morbid ſtate of the palpebræ; without which a complete cure of the diſeaſe cannot be obtained in any of its ſtages.

As ſoon as the ſac is nearly reduced to its natural capacity, which may be aſcertained by examination with the point of a probe, the uſe of eſcharotics ſhould be ſuſpended, and lint dipped in a mixture of aqua calcis and mel roſæ ſubſtituted in the place of them. Afterwards when the proceſs of cicatrization has evidently proceeded from the edges of the inciſion to the bottom of the ſac, and the diſcharge of matter from it has ceaſed; in ſhort, when the internal ſurface of the ſac is healed, it will be proper to withdraw the bougie or elaſtic gum tent from the naſal canal, in which it had been placed from the beginning of the treatment, and to ſubſtitute in its place a tent formed of lead, the upper extremity of which ſhould have affixed to it a ſmall plate of the ſame metal,* about four lines in breadth and rather more than one in thickneſs. The body of this tent being perfectly ſolid will continue to keep the naſal canal open for ſome time, and by its weight cauſe the ſmall plate reſting on the whole external ſurface of the ſac

* Plate III. fig. 9.

to

to make a continual preſſure upon it from without inwards.

This important part of the treatment was not neglected by the ancient ſurgeons, I mean the application of a moderate degree of preſſure upon the ſac, after its contraction and complete cicatrization internally. Among the moderns Guerin * appears to be the only one who has properly appreciated this practice of the ancients. For although the paſſage for the tears into the noſe may have been ſufficiently kept open, and cauſtic applications have alſo been employed to reſtore the ſac to its natural ſize, and to obtain on its internal ſurface a perfect and ſolid cicatrix; nevertheleſs it may eaſily happen that the ſac, from having been greatly dilated, (notwithſtanding the means which have been employed) may not have acquired ſufficient power, towards the end of the cure, to reſiſt a new impulſe of the tears from any little difficulty which they may meet with in paſſing into the noſe. In order therefore to prevent ſuch an accident, nothing is more advantageous, towards the end of the treatment of this form of the diſeaſe, than the application of a gentle degree of preſſure upon the external ſurface of the ſac, in order to reſtore its natural tone, and enable it to reſiſt any accidental impulſe of the tears, after every

* Eſſai ſur les maladies des yeux, p. 160.

kind

kind of application has been removed. I have obſerved, however, that preſſure made upon the ſac, by means of graduated compreſſes and the monoculus bandage, or by the ſmall machine of *Aquapendente*, however altered and improved, does not ſpeedily anſwer the purpoſe; ſince both theſe methods are very inconvenient to the patient, are eaſily removed from the point of compreſſion, and, however careſully applied, never exerciſe an uniform degree of preſſure upon the external parietes of the ſac. By means of the ſmall plate, affixed to the extremity of the leaden tent, this intention is anſwered in the moſt complete and ſimple manner; ſince, as I have before ſtated, it reſts preciſely in the direction of the ſac, and being conſtantly preſſed downwards by the weight of the tent, makes a gentle and equable preſſure upon its external part, without occaſioning the ſmalleſt inconvenience to the patient.

So great is the advantage derived from a conſtant and regular preſſure made upon the external part of the ſac, whether ſimply dilated, or accompanied with ulceration, by means of this inſtrument, that in a lady in whom the lachrymal ſac was very much dilated, and had recently ſuppurated and burſt externally, but who had not courage to ſubmit to an operation, after having enlarged the aperture of the ſi-

nus,

nus, by means of a piece of catgut, and paſſed into the noſe a tent of a large ſize furniſhed with an external plate, I ſucceeded in the courſe of eight months in leſſening the lachrymal ſac, ſo as to reduce it to its natural ſize; and, by deſtroying at the ſame time the fungus which formed around the fiſtulous opening, and within its cavity, ſometimes by the hydrargyrus nitratus ruber, at other times by the argentum nitratum, the diſeaſe was perfectly cured: which I am certain would not have been effected by the mere dilatation of the naſal canal, or it would have relapſed ſhortly afterwards, from the permanent dilatation and flaccidity of the lachrymal ſac.

When after ſome time the ſurgeon ſhall perceive that by means of this plate the lachrymal ſac, inſtead of projecting outwards, on the contrary ſinks within the ſulcus of the *os unguis*, the leaden tent ſhould be completely withdrawn, and the external aperture of the lachrymal ſac, now reduced to a ſize only large enough to admit it, be ſuffered to cloſe, without employing any means to remove the callus which ſurrounds the margin of the opening; and that for the following reaſons: if the tears, no longer mixed with the puriform humour of the palpebræ, paſs directly through the naſal canal, and deſcending without any conſiderable obſtruction are diſcharged into the noſe, the cure is completed;

pleted; and no veſtige of this opening remains externally, as its edges, although callous, approximate and contract ſo as ſcarcely to be perceptible. If, on the contrary, notwithſtanding the naſal canal having been kept dilated, the tears meet ſome obſtruction, in conſequence of any unuſual foldings of the *via lachrymalia*, they neither accumulate in the ſac, ſo as to diſtend it, nor flow back upon the eye, but paſs partly through the naſal canal and partly through this ſmall external aperture, which has been left conveniently open, from which they iſſue at intervals in the form of ſmall drops, without even the patient, or thoſe around him, perceiving it; this ſmall diſcharge, added to that by the naſal canal, being ſufficient to preſerve the eye conſtantly clear and free from tears. In proceſs of time, however, the whole of the tears reſume their courſe through the naſal canal, and the external aperture diſappears. Some years ago a medical ſtudent informed me that he had had, from his earlieſt infancy, a ſmall aperture upon each lachrymal ſac, ſufficient to admit the point of a needle, and ſo ſmall as to be ſcarcely perceptible to the naked eye. He told me that whenever the ſecretion of tears was greatly augmented by expoſure to very cold air, ſmoke, or other ſimilar cauſes, a ſmall quantity of tears iſſued from this aperture in the form of dew or drops of ſweat;

ſweat; but that it was not attended with any inconvenience, and that when it took place no defect could be perceived in the part. I am poſſeſſed of an extenſive ſeries of facts, which point out the advantages of this practice. For, as I have ſaid, either the tears paſs freely through the naſal canal into the cavity of the noſtrils, and the external aperture, although callous, contracts ſo cloſely as to be no longer diſtinguiſhable; or the tears for ſome time are ſlightly obſtructed in their paſſage through the naſal canal; and, although, they accumulate in the ſac, do not diſtend it immoderately or occaſion a relapſe of the diſeaſe; or, laſtly, the diſeaſe of the *via lachrymalia* is ſuch, that even after the moſt methodical treatment, their paſſage from the bottom of the ſac into the noſe is altogether, or in a great meaſure, permanently intercepted; and, in this caſe, it is better for the patient that a few drops of tears ſhould occaſionally eſcape from the external aperture of the ſac, as in the caſe of the ſtudent before mentioned, than that he ſhould be ſubject to a new diſtention and ulceration of the ſac, and a perpetual reflux and inundation of the tears upon the eye. I can, however, aſſert that in the greater number of caſes which have come under my obſervation, in which, after the treatment of the *fiſtula lachrymalis*, a paſſage has remained open for a few ſmall drops of tears through

the callous aperture of the ſac, it has produced no remarkable inconvenience to the patient, and has ceaſed ſpontaneouſly after a few months. From what has been ſtated it will be eaſy for the ſtudent to comprehend what I have to ſay reſpecting the treatment of the third and fourth ſtages of the *puriform diſcharge of the palpebræ*, or rather of the *fiſtula lachrymalis*.

When the *puriform diſcharge of the palpebræ* is accompanied with an abſceſs of the parietes of the lachrymal ſac, or an ulceration of its membranes opening externally, this conſtitutes the true *fiſtula lachrymalis*. If we recollect that this diſeaſe derives its origin from the puriform humour which is abundantly ſecreted by the glands of Meibomius, and the internal membrane of the palpebræ, and that this thick and tenacious humour being retained and accumulated in the ſac, partly by diſtending and partly by irritating it, has produced an inflammation and conſequent ſuppuration and ulceration of its membranes, and the integuments covering it; the method of treating the *fiſtula lachrymalis* will not be different from that laid down in the ſecond ſtage of the puriform diſcharge of the palpebræ. The primary indication, therefore, in the treatment of the *fiſtula lachrymalis* will be invariably to correct the morbid ſecretion of the palpebræ; to lay open the lachrymal ſac through its whole extent, and to place a bou-

a bougie or elaſtic gum tent in the naſal canal, ſo that it ſhall occupy no part of the cavity of the ſac; and, laſtly, to remedy the flaccidity, ſuppuration, and ulceration, by eſcharotic and detergent applications, and by compreſſion. As the ſpontaneous rupture of the abſceſs or the ulceration moſt frequently takes place in a part not favourably ſituated for dividing the lachrymal ſac, with preciſion, through its whole extent, in ſuch caſes, therefore, the ſurgeon ſhould not attend to the orifice formed by the abſceſs or ulcer, but ſhould lay it open longitudinally, preciſely according to the rules already delivered. In ſuch caſes, eſpecially in ulcerations of the internal membrane of the lachrymal ſac of long ſtanding, this membrane is conſtantly found converted into a fungous ſubſtance, and in ſome parts of it hard and callous. The ſurgeon having therefore placed the bougie or elaſtic gum tent, ſecured by a waxed thread, in ſuch a manner as to occupy the naſal canal only, ſhould immediately have recourſe to eſcharotics, ſuch as the hydrargyrus nitratus ruber, either alone, or conjoined with a ſmall quantity of alum, or to the argentum nitratum, with which the cavity of the ſac ſhould be ſprinkled and filled at each dreſſing, until the fungus and callus are entirely deſtroyed, and the ulcer

which

which remains is ſuſceptible of a ſolid cicatrization.

To this very important part of the treatment of the *fiſtula lachrymalis* the ancient writers in ſurgery paid the moſt ſcrupulous attention: Ægnieta, Ætius, Avicenna, and the moſt celebrated practitioners of the ſucceeding age, have ſpoken of it diffuſely, and have, with much reaſon, regarded it as one of the moſt eſſential points in the cure of the diſeaſe. The cauſtics which they employed for this purpoſe were the unguentum *isis*,* an ointment compoſed of ceruſe and the hydrarg. nitrat. rub. the unguentum ægyptiacum (oxymel æruginis), the trochiſci de minio and the cuprum vitriolatum. This practice, however prudent or advantageous, fell into diſuſe when the new theory came into vogue, which taught that the *fiſtula lachrymalis* was derived from no other cauſe than the obſtruction of the naſal canal; and that therefore, in order to effect a radical cure of it, it was only neceſſary to clear and dilate this canal, or to make a new paſſage for the tears into the noſe. The frequent relapſes which have taken place ſince the introduction of this mode of treatment, and the doubts which even at the preſent time are occaſionally raiſed by ſurgical writers of the

* The two principal ingredients in this ointment, according to Galen, are the ærugo æris (cuprum vitriolatum) and alumen uſtum.

higheſt repute, of the poſſibility of the radical cure of the *fiſtula lachrymalis*, ſufficiently demonſtrate the contrary, and prove how improperly the ancient method of employing cauſtics in a prudent manner has been abandoned in the treatment of this diſeaſe. This very uſeful practice of the ancients has been revived among us by the elder Nannoni,* with this difference, however, that this able ſurgeon has, in my opinion, propoſed too free an uſe of the cauſtic, in the treatment of the *fiſtula lachrymalis*, that is ſo as to deſtroy the ſac entirely, *and convert it into a completely ſolid and callous body*; and this he attempted to do the more confidently, from a perſuaſion, that, "*when the lachrymal ſac is converted into a ſolid body, the tears occaſion little or no inconvenience:*" an opinion, which indeed ſtands in perfect oppoſition to obſervation and the anatomical ſtructure of the parts. But as he adduces inſtances of perſons, in whom, after ſuch treatment, there remained no weeping of the eye, it is reaſonable to conclude that the cauſtic in theſe caſes had deſtroyed the fungus of the ſac, and facilitated the healing of its internal ſurface, not that it had obliterated the cavity, which, notwithſtanding ſuch deſtruction, had preſerved its continuity with the naſal canal.

This is preciſely what the ſurgeon ought

* Trattato Chirurg. ſulla ſemplicità del med. Oſſerv. xxxi.

to

to have in view in the treatment of the *fiſtula lachrymalis*, otherwiſe, by the total deſtruction and obliteration of the lachrymal ſac, he would only be converting it into another diſeaſe equally troubleſome, the perpetual reflux and accumulation of tears and matter upon the correſponding eye. The action of the cauſtic ſhould be therefore regulated in ſuch a manner as only to deſtroy the fungus, and diſpoſe the internal ſurface of the ſac to heal. After this has been accompliſhed, the bougie or elaſtic gum tent ſhould be withdrawn from the naſal canal, and the reſt of the treatment conducted in the manner before directed, by compreſſing the external part of the ſac, by means of the plate affixed to the tent of lead, and after it is withdrawn, allowing the tears the greateſt poſſible opportunity of diſcharging themſelves into the noſe.

The fourth ſtage of the puriform diſcharge of the palpebræ, commonly called by ſurgeons *fiſtula lachrymalis cum carie*, is a diſeaſe leſs common than was formerly imagined, but which, however, I have had frequent opportunities of ſeeing, in the courſe of my practice; and from my own obſervations on this ſubject, it appears to me that this ſtage of the *fiſtula lachrymalis* preſents itſelf under two diſtinct forms. The firſt is that in which the ſac, having been for a conſiderable time enormouſly diſtended,

and filled with a mixture of matter, tears, and the puriform humour of the palpebræ, is entire externally, but opens internally into the correſponding noſtril through the *os unguis*, which is carious and eroded, and in which the deſtruction of the *via lachrymalia* is ſo great that the naſal canal is obliterated and deſtroyed, and may be conſidered as having no connection with the lachrymal ſac. The other form of the diſeaſe is that in which the ulcerated ſac opens externally, and the *os unguis* in its poſterior part is denuded and carious, but not perforated, and where the naſal canal is indurated and filled with fungus, ſo as to be nearly cloſed and ſeparated from the reſt of the *via lachrymalia*.

The firſt form of this diſeaſe may be known, by obſerving, that when the ſac, which is very large, is even gently compreſſed, a ſmall portion only of the purulent humour contained in it iſſues through the *puncta lachrymalia* upon the eye, while the greater part of that fluid is diſcharged into the noſe, and the capacious ſac at the ſame time ſubſides and diſappears, and the matter which iſſues abundantly from the correſponding noſtril emits a fœtid odour which is peculiar to carious bone. The ſecond form of this diſeaſe is rendered evident by the introduction of a probe into the ſac, by which the *os unguis* is found denuded, and which being preſſed downwards in all directions, inſtead of entering the naſal canal,

canal, comes in contact only with fungous, indurated, and contracted parts.

The firſt of theſe forms of the *fiſtula lachrymalis*, is not beyond the reach of art, and allows us to hope for a perfect cure, provided the diſeaſe only includes the *os unguis*, with a ſmall part of the ethmoidal cells. For if the ſac be laid open through its whole extent, without any regard to the reſtoration of the naſal canal, and its cavity cleared by means of eſcharotic and detergent applications, as the aqua calcis with mel roſæ, the ſeparation of the carious and perforated bone, and the contraction of the cavity of the ſac, are neceſſary conſequences. The puriform diſcharge of the palpebræ ceaſes by applying upon the internal ſurface of the eye-lids, from the commencement of the treatment, the unguentum ophthalmicum, the action of which remedy may be aſſiſted, according to circumſtances, by the internal uſe of ſuch medicines as are adapted to correct the particular diatheſis, by which the morbid ſecretion of the palpebræ has been produced or kept up. Theſe advantages being obtained, and the internal ſurface of the ſac healed, and nearly reduced to its natural ſize, if the edges of the external wound are permitted to approximate and contract, ſo that there is no longer any veſtige of it, the opening which remains in the poſterior part of the lachrymal ſac, communicating with the correſponding noſtril, is ſo large, from the defi-

ciency of the *os unguis* and the pituitary membrane which covers it on the ſide of the noſe, that the tears carried by the *puncta lachrymalia* and lachrymal canals into the ſac are immediately diſcharged into the noſe, ſo that the cure may be conſidered as complete, ſince the patient is no longer incommoded by the overflowing of the tears.

The ſame method of treatment is attended with equal ſucceſs in the ſecond form of the *fiſtula lachrymalis*, accompanied with denudation of the *os unguis*; with this difference, that as the *os unguis* is only denuded and not perforated, and the pituitary membrane covering it on the ſide of the noſtril is entire, and as there is no hope of being able to reſtore the office of the naſal canal, in this caſe it becomes abſolutely neceſſary to make a new and permanent paſſage for the tears into the noſe, by perforating and deſtroying the denuded *os unguis* and the correſponding portion of the pituitary membrane. Experience has ſhown, that the mere perforation of the *os unguis* and pituitary membrane, without a deſtruction of a portion of the latter to ſome extent around the place of perforation or ſeparation of the bone, does not ſufficiently anſwer the purpoſe, ſince this opening in proceſs of time becomes too ſmall for the diſcharge of the tears, and continues gradually contracting until it is entirely cloſed. A very common exemplification

ſication of this preſents itſelf in the caries of the palate from a venereal cauſe. When the carious portion of bone is ſeparated, a communication ſometimes remains between the noſe and mouth, ſufficient to admit the point of the finger; this aperture, however, gradually contracts itſelf, ſo as ſcarcely to admit a writing quill, and it ſometimes even cloſes up entirely, in conſequence of the approximation of the membrane of the palate, which has been divided, but not much injured by the preceding ulceration attending the caries of the ſubjacent bone. If this takes place under ſuch circumſtances the cloſing of the pituitary membrane is much more to be expected after the ſimple perforation of it by the trocar, which is employed for the purpoſe of piercing the *os unguis*. The tubes, which have been propoſed for keeping this perforation of the pituitary membrane conſtantly open are not to be confided in, ſince even thoſe which are beſt conſtructed for producing ſuch an effect are very frequently, after a ſhort time, forced upwards againſt the anterior part of the lachrymal ſac, or they fall into the noſtrils too ſoon, or in the ſpace of a few months they are filled with an earthy ſubſtance which renders them completely impervious and uſeleſs. The perforation and ſeparation of the denuded *os unguis*, therefore, as well as the deſtruction of a portion of the pituitary membrane around the

part where *os unguis* has been detached, are the only certain and efficacious means hitherto diſcovered, which can ſecure a permanent paſſage for the tears into the noſe: to anſwer which purpoſe no mode of treatment appears better adapted than the application of the actual cautery, which, though certainly too freely employed by the older ſurgeons, has been too haſtily rejected by the moderns.* Men's opinions generally run into extremes. The ancients cauterized the *os unguis* and pituitary membrane, in every caſe of *fiſtula lachrymalis*, and very frequently without neceſſity; the moderns, notwithſtanding its evident utility and neceſſity, neglect it altogether.

For the purpoſe of applying the cautery, the ſac ſhould be divided through its whole extent, and its cavity filled with ſoft lint, which ſhould be retained in its place by means of a compreſs and bandage. At the end of two days the dreſſing ſhould be removed, and the cavity of the ſac and denuded bone made perfectly dry. A canula† being introduced within the ſac, and placed upon the *os unguis* in a direction a little oblique from above downwards, and the patient's head firmly ſupported, the ſurgeon with one hand ſhould hold the canula, and with the other paſs the cautery‡ as far as the *os*

* Of this opinion alſo is Richter. Obſ. Med. Chirurg. ch. x.

† Plate III fig. 5.

‡ Plate III. fig. 6.

*unguis*,

*unguis*, upon which he ſhould make a moderate degree of preſſure, in order that the point of the cautery may not only paſs beyond it, but alſo deſtroy the pituitary membrane which covers it internally. And as it is a matter of the greateſt importance for the complete ſucceſs of the operation, that this part of the membrane ſhould form an eſchar, and be completely detached around the opening in the bone, if the ſurgeon therefore perceive that the point of the cautery cools too quickly, he ſhould carefully apply a ſecond, which he ſhould have in readineſs for that purpoſe. The cavity of the ſac ſhould be afterwards filled with ſoft lint ſpread with an emollient ointment, ſuch as that conſiſting of wax and oil, and the patient be directed to draw up his noſtrils frequently in the courſe of the day the aqua malvæ in a tepid ſtate. If, on the following day, the patient feel much pain and there be conſiderable tumefaction of the noſe and palpebræ, they ſhould be covered with a poultice of bread and new milk. As ſoon as a ſuppuration is eſtabliſhed between the ſound and cauterized parts, the eſchar of the pituitary membrane will be diſcharged through the noſe, and the fragments of the *os unguis* will paſs partly along with the matter by the external opening of the ſac, and partly by the noſtril. Through this new opening into the noſe the ſurgeon ſhould now introduce

troduce either a bougie or a ſmall ſindon of fine linen tied with a waxed thread, to prevent its falling into the noſtrils, the ſize of which ſhould be increaſed in proportion as the new opening becomes larger by the looſening of other portions of the eſchar of the pituitary membrane or particles of bone. Beſides the application of the ophthalmic ointment of Janin, in order to ſuppreſs the puriform diſcharge of the palpebræ, eſcharotics ſhould be employed at the ſame time, with a view to deſtroy the fungous and indurated parts of the ſac, and to obtain a contraction of its cavity nearly to its natural ſize. When the whole internal ſurface of the ſac is nearly healed, if there be any appearance of fungus around the artificial opening in the noſe, it ſhould be repreſſed by touching it frequently with the argentum nitratum; nor ſhould this be omitted until the margin of this internal opening be as perfectly healed as the reſt of the cavity of the ſac. After which the lips of the external wound ſhould be ſuffered to cloſe without ſcarifying their edges,

It may not be unneceſſary to obſerve here, that the treatment of this, as well as of the ſecond ſtage of the puriform diſcharge of the palpebræ is of long duration, and that the cure is ſeldom completed in leſs than four months, even where the moſt diligent attention is paid, and the patient, in other reſpects, is perfectly healthy.

healthy. But this delay is ſufficiently compenſated by a perfect and laſting cure.

From what has been delivered in this chapter we are enabled to draw the following concluſions.

1. That the diſeaſe generally termed *fiſtula lachrymalis,* which is divided by ſome very accurate writers into the *ſimple,* the *compound,* with atony or flaccidity of the ſac, and the *complicated* with caries of the *os unguis,* is principally derived from the morbid ſecretion of the glands of Meibomius and the internal membrane of the palpebræ.

2. That it is impoſſible to obtain a perfect cure of this diſeaſe in any degree, ſtage, or complication, unleſs the morbid ſecretion of the palpebræ be at the ſame time permanently corrected by the application of topical remedies upon the margin and internal ſurface of the affected eye-lids, and by the uſe of ſuch internal medicines as are calculated to correct the particular prediſpoſition from which the morbid ſecretion of the palpebræ is derived.

3. That in the ſecond ſtage of the diſeaſe attended with atony and evident diſtention of the ſac, although the morbid ſecretion of the palpebræ be corrected, and the action of the naſal canal perfectly reſtored, the weeping of the eye will nevertheleſs continue, unleſs the ſac be reduced to its natural ſize, by laying it

open

open through its whole extent, and by applying upon its internal ſurface eſcharotics, and afterwards detergent and aſtringent remedies, ſo as to reeſtabliſh a certain proportion between the capacity of the ſac and the caliber of the naſal canal.

4. That the *fiſtula lachrymalis*, accompanied with caries and perforation of the *os unguis*, and of that portion of the pituitary membrane which covers it, together with an obliteration of the naſal canal, provided the caries has not penetrated too deeply within the ethmoidal cells, particularly in unhealthy conſtitutions, admits of a perfect cure, without any inconvenience remaining from the weeping of the eye, by merely deſtroying the fungus within the cavity of the ſac, by promoting the ſeparation of the edges of the carious and eroded bone, and by reſtoring the cavity of the ſac to its natural ſize, and healing it internally.

5. That in the *fiſtula lachrymalis*, with denudation of the *os unguis*, and an inſuperable obſtruction of the naſal canal, in which it becomes neceſſary, in order to effect a perfect cure of the diſeaſe, to make a new paſſage for the tears from the ſac into the noſe, the application of the cautery is preferable to the ſimple perforation of the bone and pituitary membrane by means of the trocar; ſince the paſſage in the *os unguis* does not remain ſufficiently and conſtantly

ſtantly open, unleſs the portion of pituitary membrane which covers it be alſo deſtroyed.

6. That at the end of the treatment of the ſecond, as well as of the third and fourth ſtages of the diſeaſe, it is an uſeful precaution not to ſcarify the edges of the external orifice of the ſac, which is now healed internally, but to ſuffer them to contract ſpontaneouſly, until at leaſt there are the moſt certain indications that the tears meet with no obſtruction in the ſac, and either paſs completely through the naſal canal, or through the artificial opening made in the *os unguis* and pituitary membrane.

## Case I.

A young lady of Pavia, 17 years of age, of a delicate and ſenſible fibre, began to experience an unuſual difficulty in opening the right eye, in conſequence of a preternatural tumefaction of the palpebræ of that ſide, accompanied with a weeping of the eye, and an accumulation of gum, eſpecially in the morning. She was directed to waſh the eye frequently with elder-flower water. After four months the diſeaſe had greatly increaſed, and on being conſulted, I found, that on preſſing the lachrymal ſac a very conſiderable quantity of puriform matter iſſued from the *puncta*. On everting the palpebræ of the right ſide, the internal ſurface, eſpecially of the inferior eye-lid, near its margin,

was

was evidently more tumefied than natural, and had a villous appearance, the glands of Meibomius were more turgid and elevated than uſual, and interwoven with ſmall varicoſe veſſels: which appearances were not perceptible, or in a very ſmall degree, upon the internal ſurface of the left ſide. The right ala of the noſe in this young lady alſo had been for ſeveral months very red and ſwollen, and the internal ſurface of the correſponding noſtril incruſted and dry.

Having preſſed out all the puriform matter contained in the ſac, I attempted to inject ſome water through one of the *puncta lachrymalia*, and at the fourth attempt the water paſſed into the noſe and fauces. And as the lachrymal ſac was not perceptibly more diſtended than natural, I directed all my attention to divert the diſcharge, to diminiſh and correct the morbid ſecretion, and at the ſame time to ſtrengthen the varicoſe veſſels of the internal membrane of the affected eye-lids.

I therefore ordered the patient to take, in the courſe of the day, a pint of milk whey, with a dram of the cryſtals of tartar, and half a grain of tartarized antimony, which did not diſagree with the ſtomach, and procured one, and ſometimes two copious evacuations every day.

As a local application, a ſmall quantity of the ophthalmic ointment of Janin was introduced between the eye-lids, prepared exactly according to

to the author's formula. The irritation which this remedy produced in the preſent caſe was ſo violent, that in little more than an hour, notwithſtanding the parts were repeatedly waſhed with milk, the eye-lids became enormouſly ſwollen and inflamed. During the inflammation, which continued four or five days, the puriform diſcharge was entirely ſuppreſſed, nor could any thing be forced from the ſac, though preſſed upon at different intervals, except pure tears. On the ſubſidence of the inflammation the puriform diſcharge of the palpebræ returned nearly as before. The ophthalmic ointment was again applied, which was rendered leſs active by adding a double quantity of lard, of which a portion equal to a grain and a half of wheat was applied morning and evening, the *via lachrymalia* being previouſly cleared by an injection of plantain water with a ſmall quantity of ſpirit of wine added to it, and a few drops of the vitriolic collyrium were inſtilled into the eye three or four times a day.

By this treatment, at the end of three weeks the puriform diſcharged was greatly diminiſhed, and conſiſted of little more than tears rendered turbid by mucus, and the right ala of the noſe was no longer incruſted, but reſumed its natural appearance. The internal membrane of the eye-lids became gradually pale and ſmooth, the glands of Meibomius recovered their natural

ſize, and the varicoſe veſſels diſappeared; the uſe of the whey with the antimon. tart. was now ſuſpended.

About the fortieth day, on preſſing upon the ſac, there only iſſued from it pure tears, and the injection paſſed with the greateſt facility from the *puncta lachrymalia* into the noſe. The tears, however, continued to meet with ſome obſtruction, and the patient, on expoſing herſelf to cold air, or reading by the light of the candle, was obliged to wipe the eye frequently. As this inconvenience did not appear to ariſe from an atony of the ſac, and as the patient conſtantly complained of a fullneſs of the pituitary membrane of the right noſtril, by which the extremity of the naſal canal ſuffered ſome degree of conſtriction, I ordered her to draw up her noſtril frequently in the courſe of the day the vapour of vinegar and water, and to take a little ſnuff. This expedient ſucceeded very well, for in ten days the diſcharge from the noſe was reeſtabliſhed, and the weeping of the eye entirely ceaſed.

## Case II.

Maria Bordoni, of S^a^ Chriſtina, a girl 12 years old, who had been ſubject in her infancy to frequent attacks of ophthalmia, in one and ſometimes both eyes, was affected for eight weeks with a weeping of the right eye, and a conſiderable

rable diſcharge of apparently purulent matter. She was brought by her parents to the hoſpital, not ſo much on this account, as in conſequence of a ſmall hard, red, and painful tumour which had made its appearance, within ſix days, between the internal angle of the eye and the noſe.

The edges of the eye-lids of the right ſide were conſiderably tumefied, their internal ſurface red, and preſenting a fungous appearance, and the glands of Meibomius greatly increaſed in ſize.

A poultice of bread and milk was applied upon the tumour, as the membrane of the ſac appeared to be in a ſtate approaching to ſuppuration; in a few days, however, the inflammation was diſſipated, the tumour ſubſided, and the *puncta lachrymalia*, which before appeared to be retracted towards the caruncle and were concealed, now ſeparated from the commiſſure of the palpebræ, and reſumed their natural poſition. On preſſing now upon the lachrymal ſac the puriform matter iſſued in great abundance from the *puncta lachrymalia* upon the eye.

I began immediately to employ the ophthalmic ointment of Janin night and morning in a quantity not exceeding the ſize of a barley-corn. By this application the puriform diſcharge of the palpebræ was at firſt increaſed, but in the courſe of a month diminiſhed ſo conſiderably, that there only iſſued from the ſac a diluted

mucus. As ſoon as the edges and internal ſurface of the eye-lids had recovered their natural ſtate, I began to inject through the *puncta lachrymalia*, plantain water, with a little of the vitriolic collyrium, added to it, which had been filtered, and the injection paſſed into the noſe. The child was treated in this manner for twenty days more, and then diſcharged from the hoſpital perfectly cured.

### Case III.

A country boy, 10 years of age, after a variolous metaſtaſis to the eyes, with which he had been attacked two years before, was affected with a weeping of both eyes and a gumming of the eye-lids. The palpebræ were thickened and deprived of their laſhes, and their internal ſurface was of a dark red colour, and had a villous appearance; the glands of Meibomius were more elevated than uſual, and on preſſing the ſac on each ſide, which, however, did not appear to be more diſtended or elevated than natural, a conſiderable quantity of curdly, yellowiſh, puriform matter iſſued from the *puncta*. This child had, what is commonly called, a groſs habit of body.

I began the treatment, by ordering ten ounces of the decoction of the triticum repens, a dram of the cryſtalli tartari, and half a grain of the antimonium tartarizatum, to be taken every day at

at intervals; and if the medicine ſhould purge him too much, he was directed to take only half the quantity for a few days following. I directed alſo that the ophthalmic ointment of Janin ſhould be applied morning and evening between the palpebræ of both eyes, which, as uſual, conſiderably increaſed the ſecretion of puriform matter. Finding that at the end of two weeks the diſcharge did not diminiſh, I made a ſeton in the neck which preſently ſuppurated and greatly relieved the eyes. From this period, by continuing the application of the ophthalmic ointment, and frequently purging the patient with ſmall doſes of the antimonium tartarizatum, the puriform diſcharge gradually diminiſhed, the edges of the eye-lids ſubſided and recovered their natural flexibility, and the internal ſurface began to aſſume a pale colour, and to loſe its villous appearance. The daily and frequent uſe of the vitriolic collyrium, and the injection of plantain water with a little ſpirit of wine through the *puncta lachrymalia* was never omitted. The injection at the firſt paſſed with ſome difficulty, but it afterwards deſcended freely into the noſe on both ſides; and towards the end of the third month the child left the hoſpital completely cured.

## Case IV.

A girl, four years of age, of Parpaneſe, was affected after the ſmall-pox with an habitual ophthalmia of the right eye, accompanied with a turgeſcence of the edges of the eye-lids, a copious diſcharge of puriform matter, and great ſenſibility of the eye to a very moderate degree of light. After an ineffectual treatment of ſeveral months, the child was brought to Pavia, in the beginning of December 1798. The internal ſurface of the palpebræ was red and villous, and on compreſſing the ſac a thick, yellowiſh matter mixed with tears, iſſued from the *puncta lachrymalia*, ſimilar to that with which the eye-lids were continually imbued. The lachrymal ſac, however, did not appear larger or more elevated than natural. It is proper to remark that the lymphatic glands of the neck were enlarged and indurated, the abdomen turgid, and that the child had an extraordinary voracity for every kind of food. Added to this, there was a conſtant diſcharge of a whitiſh matter from the parts of generation, ſimilar to the fluor albus.

I ordered, at firſt, a good diet, and directed that the child ſhould take every day, in ſmall doſes, a pint of the decoction of the triticum repens, with a dram of the cryſtalli tartari, and half a grain of the antimonium tartarizatum. This remedy occaſioned at firſt a copious vomiting

of

of viſcid, yellowiſh matter, but afterwards it excited only a ſlight nauſea, and two or three evacuations in the courſe of the day, without inducing debility. A few days afterwards I directed three drops of the Tinctura Thebaïca of the London Pharmacopœia to be inſtilled into the eye for ſeveral ſucceſſive nights, which excited great pain at the firſt, but after a few minutes it ceaſed entirely, and left the eye in a better ſtate than before, having rendered it leſs impatient of the light. After purſuing this treatment for two weeks, I made a ſeton in the neck, which preſently produced a copious ſuppuration, and was attended with a conſiderable diminution of the chronic ophthalmia. The uſe of the antimonium tartarizatum was continued in ſmall doſes, and the ophthalmic ointment of Janin ſubſtituted for the Thebaïc tincture, at firſt only in the evening, but afterwards morning and evening, and the vitriolic collyrium was dropped into the eye every three hours in the day.

By the uſe of theſe remedies the chronic ophthalmia was entirely diſſipated, the edges of the eye-lids recovered their form and natural ſtate, and the quantity of puriform matter which iſſued from the *puncta lachrymalia* upon the eye, by preſſing upon the ſac, was gradually leſſened. Towards the end of February of the ſame year, the regurgitation of matter ceaſed altogether, as

well as the coheſion of the eye-lids during the night. The tumefaction of the abdomen and lymphatic glands of the neck was very much diminiſhed; the child improved in its appearance, and was ſatisfied with a moderate quantity of food; there was yet, however, a little diſcharge from the genitals. In the beginning of March I ordered the child to take two ounces of the tincture of the cinchona three times a day.* Towards the middle of April ſhe was diſmiſſed perfectly cured, without any fear of the puriform diſcharge of the eye-lids degenerating into the *fiſtula lachrymalis*. The ſeton was kept open for ſeveral months afterwards.

## Case V.

Signora Angiola P. . . , a lady, 40 years of age, living in the vicinity of this city, neglected a puriform diſcharge of the palpebræ for more than 11 years, which by degrees produced an enormous dilatation of the lachrymal ſac. When I examined her the firſt time, the lachrymal ſac was full, the tumour which it formed externally was rather larger than a filbert, and on being preſſed gave iſſue to a large quantity of viſcid, curdly, greeniſh matter. The edges of the eye-lids of the ſame ſide were tumid, and

* I ſuſpect the author here means a watery tincture or infuſion of the bark, as ſuch a quantity of the ſpirituous tincture could not fail to have been attended with unpleaſant effects.

internally red and fungous, and the ſebaceous glands greatly enlarged.

I laid open the lachrymal ſac through its whole extent, from the ligament of the orbicularis muſcle to the loweſt part of it, and having paſſed a fine probe through the naſal canal, and afterwards one of a larger ſize, I introduced into it a bougie an inch and a half long, tied with a waxed thread, in ſuch a manner that its upper extremity ſhould remain entirely concealed in the naſal canal; and I filled the whole cavity of the ſac very exactly with ſoft lint, which I confined in its ſituation by means of a compreſs and the *monoculus* bandage.

At the end of two days I took off the dreſſings, without removing the bougie from the naſal canal. I found the whole internal ſurface of the ſac in a fungous ſtate. I filled its cavity with a doſſil of lint ſpread with a liniment, conſiſting of the hydrargyrus nitratus ruber, and mucilage of gum arabic. On the following day the doſſil of lint came away covered with a thick whitiſh or cottony cruſt, and this ſubſtance continued to come away in an increaſed quantity by the uſe of the hydrargyrus nitratus ruber, with which the cavity of the ſac was filled ſeveral times in the courſe of three weeks. From this time, by the repeated application of the cauſtic powder, the fungus of the internal ſurface of the ſac

began to diſappear, and its cavity to contract. I withdrew the bougie for the firſt time from the naſal canal in order to clean it and immediately replaced it.

This treatment was continued during twenty days longer, occaſionally increaſing the activity of the hydrargyrus nitrat. rub. by the addition of a ſmall quantity of alum, and keeping the external opening of the ſac dilated by the introduction of lint, and ſometimes ſponge, and that with the ſame advantage as before, with reſpect to the deſtruction of the fungus and the contraction of the atonic and flaccid ſac. The dreſſing afterwards conſiſted in filling the cavity of the ſac very exactly with lint moiſtened in the aqua calcis and mel roſæ. I then withdrew the bougie from the naſal canal for the ſecond time, for the purpoſe of cleaning it, and immediately replaced it as before.

The cicatrix began to extend from the edges of the external opening of the ſac towards its internal ſurface, which in a month after this period was nearly reduced to its natural capacity. There remained, however, here and there ſome points not healed, which appeared rather diſpoſed to throw out a fungus; and that part of the ſac ſituated above the tendon of the orbicularis muſcle,* which had not been included in the inciſion, was not yet diminiſhed, in pro-

* Plate I. a.

portion

portion to the reſt of the ſac. The cure was completed three weeks afterwards, by the occaſional application of the argentum nitrat. and dry lint.

At the expiration of this time the bougie was entirely withdrawn from the naſal canal, and the leaden tent with its plate * intended to compreſs the anterior part of the ſac ſubſtituted in its place. I directed her to wear this for a full month, and to clean it every day, and waſh the eye with plantain water mixed with a little ſpirit of wine.

The palpebræ having recovered their natural ſtate by the application of the ophthalmic ointment of Janin, which had been employed from the beginning of the treatment, and there being only a diſcharge of limpid tears from the orifice of the ſac, I removed the leaden tent entirely, the plate of which had ſo completely compreſſed the ſac, that inſtead of threatening a new elevation, it was even more depreſſed within the ſulcus of the bone than natural. The edges of the orifice of the ſac, which before were callous and elevated around the cylinder of the tent, immediately contracted, although they had neither been ſtimulated nor ſcarified, without leaving ſcarcely any veſtige of the inciſion made in the ſac; and the tears immediately paſſed into the naſal canal. It is proper to remark that,

* Plate III. fig. 9.

except

except during the firſt fifteen days from the operation, the patient conſtantly attended her family affairs as uſual, and that ſhe has now enjoyed five years of the moſt perfect health, ſuffering no inconvenience either from the weeping of the eye or the diſcharge of matter.

## Case VI.

Signor Franceſco Bochioli, of S. Angelo Lodigiano, a robuſt man 50 years of age, was affected for about 10 years with a puriform diſcharge of the palpebræ of the right eye, attended with atony and great dilatation of the lachrymal ſac, which occaſioned a continual diſcharge of tears, and frequent attacks of acute ophthalmia on that ſide. When I ſaw him, the tumour formed by the lachrymal ſac was the ſize of a nut, ſlightly inflamed and painful; the edges of the eye-lids were tumefied as uſual, their internal ſurface was florid and villous, and the glands of Meibomius enlarged.

A poultice of bread and milk was applied for two days upon the affected palpebræ and lachrymal ſac, to diminiſh the rigidity of theſe parts, and at the ſame time to leſſen the ſlight degree of inflammation and tenſion of the integuments. The operation was then performed as in the preceding caſe, by laying the ſac open through its whole extent, from the tendon of the orbicularis muſcle to the loweſt part of it, and introducing

troducing a bougie an inch and a half in length into the naſal canal, without its upper extremity projecting into the cavity of the ſac.

The fungus of the internal ſurface of the lachrymal ſac was very conſiderable, in order to deſtroy which I was under the neceſſity of employing, for thirty ſucceſſive days, ſometimes the eſcharotic liniment abovementioned, occaſionally the hydrarg. nitrat. rub. alone or mixed with alum, by means of which there came away at each dreſſing a ſtratum of a white thick ſubſtance reſembling cotton.

Having deſtroyed the fungus, the ulcer which occupied the internal ſurface of the ſac produced healthy granulations, and the ſac was diſpoſed to contract in every direction. As the opening was too narrow, and prevented the commodious introduction of the doſſil of lint into the cavity of the ſac, it conſequently became neceſſary to have recourſe for a few days to the prepared ſponge.

On attempting to withdraw the bougie for the firſt time from the naſal canal, the thread with which it was tied broke, probably from being too much macerated, and the bougie was left in the canal and entirely forgotten, until the cavity of the ſac was perfectly healed and contracted. This was obtained in the courſe of 40 days, by only introducing dry lint into the ſac, and occaſionally touching the bottom of the

the wound with the argent. nitrat. The cicatrix, as uſual, commenced from the edges of the wound, and by degrees extended over the internal ſurface of the ſac, which was now reduced nearly to its natural capacity. The edges of the palpebræ of the right ſide had alſo recovered their natural ſtate and flexibility from the uninterrupted uſe of the ophthalmic ointment of Janin.

The internal ſurface of the ſac being now completely healed, I introduced a thick probe through the ſac into the naſal canal, in order to puſh the bougie downwards, and make it paſs out by the noſe or fauces; but, contrary to my expectation, the probe paſſed freely into the noſe, and the injection even more ſo, which led me to ſuſpect that the bougie had recently deſcended into the fauces and ſtomach during the patients ſleep, without his having perceived it. I ſubſtituted in its place a leaden tent furniſhed with the ſmall plate for compreſſing the anterior part of the ſac, which the patient wore for 50 days; during this time he attended his buſineſs, and took it out and replaced it himſelf occaſionally. The plate by means of the weight of the leaden cylinder, having depreſſed the anterior part of the ſac conſiderably towards the ſulcus of the bone, I withdrew the tent entirely, and the external orifice of the ſac cloſed without

out its edges being ſcarified, and the tears paſſed through the naſal canal.

## Case VII.

Dominica Roſſi, a female peaſant 30 years of age, a native of the Genoeſe Mountains who lived in this city in the capacity of a ſervant, of a ſtrong and ſanguineous temperament, but who had been formerly ſubject to herpetic eruptions and eryſipelas of the face, had during ſeveral years a weeping of the left eye and a gumming of the eye-lids, with tumefaction of their edges and enlargement of the correſponding ſebaceous glands. The lachrymal ſac of that ſide had gradually increaſed to the ſize of a filbert, and on being preſſed gave iſſue to a conſiderable quantity of puriform matter. In this ſtate ſhe was admitted into the practical ſchool of ſurgery, the 9th of December 1796.

Although, from the great diſtenſion and tumefaction of the lachrymal ſac, no doubt could be entertained of the neceſſity of commencing the treatment by laying it open, yet in order fully to convince the ſtudents that the puriform matter which iſſued copiouſly from the ſac upon the eye, was not generated in the ſac itſelf, but was principally tranſmitted to it from the increaſed morbid ſecretion of the palpebræ, I merely endeavoured to correct or reſtrain this morbid ſecretion of the eye-lids, by the application

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tion of the opthalmic ointment of Janin, and the frequent uſe of the vitriolic collyrium. At the end of three weeks, the diſcharge having been almoſt entirely ſuppreſſed by theſe local remedies, there only iſſued from the diſtended ſac limpid tears, or which were rendered ſlightly turbid by a ſmall quantity of thin mucus.

I then proceeded to the radical cure, by laying the ſac open through its whole extent, and introducing a bougie into the naſal canal in the manner before mentioned, and laſtly by filling the cavity of the ſac with dry lint, which was maintained in its ſituation by a compreſs and bandage.

Two days after, the dreſſings were removed and the cavity of the ſac filled with a doſſil of lint ſpread with the liniment, conſiſting of the hydrarg. nitrat. rub. and mucilage of gum arabic. This remedy gave the patient a good deal of pain, which is not the caſe in general, and occaſioned a conſiderable tumefaction of the cheek; in conſequence of which I was under the neceſſity of deſiſting from it for ſome days. It was, however, afterwards renewed with a larger proportion of mucilage. By the corroding action of this application I obtained in the courſe of a month a ſloughing of the internal membrane of the ſac, and a conſiderable contraction of its cavity, the internal ſurface of which ſhowed a very favourable diſpoſition to heal.

heal. The lips of the orifice were carefully prevented from cloſing too quickly by the frequent introduction of ſponge inſtead of lint. As ſoon as the cavity of the ſac was reduced to its natural ſize, and completely healed internally, the bougie was withdrawn from the naſal canal, and the leaden tent with its compreſſing plate introduced in the place of it. The ſac and the reſt of the *via lachrymalia* were daily waſhed, ſometimes with plantain water and ſpirit of wine, at other times with the aqua calcis and mel roſæ.

Towards the middle of May, the external part of the ſac being ſo much depreſſed by the plate as to leave no fear of its yielding to the impulſe of the tears, every application was removed from it, and its external orifice ſuffered to cloſe. The tears were diſcharged into the noſe; with this difference, however, that if by any accident the lachrymal fluid was ſecreted in larger quantity than uſual, a few drops iſſued from this ſmall and almoſt imperceptible aperture in the ſac, and thus preſerved the eye conſtantly dry. This occaſional diſcharge continued during ſome months after the patient had left the hoſpital; it afterwards diſappeared entirely, and ſhe has remained perfectly well ever ſince. It is proper to obſerve, that, before the operation, and for ſeveral weeks afterwards the ophthalmic ointment of Janin was made uſe of

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at night until the morbid ſecretion of the palpebræ was completely ſuppreſſed; and that during the treatment the patient was frequently purged either with ſmall doſes of the tartarized antimony and cryſtals of tartar, or with the reſolvent pills of Schmucker.*

## Case VIII.

Maddalena Marinoni of Scaldaſole, a girl 19 years of age, was admitted into this hoſpital in January 1792, on account of a puriform diſcharge of the eye-lids, attended with a ſmall degree of elevation of the lachrymal ſac. By the conſtant uſe of the ophthalmic ointment of Janin morning and evening, and occaſionally of the collyrium vitriolicum, the morbid ſecretion of the eye-lids entirely ceaſed, but the eye remained conſtantly watery, and the ſac as much elevated as at firſt, which, on being preſſed, diſcharged by the *puncta* an abundant quantity of limpid tears. The puriform diſcharge of the palpebræ was changed into that diſeaſe, which is generally called by ſurgeons *the dropſy of the lachrymal ſac.* Being perfectly ſatisfied, that, in order to reſtore to the ſac its natural elaſticity and ſize, little advantage would be derived either from aſtringent injections, or compreſſion, I determined to lay it open longitudinally, which I found internally ſmooth, and without the leaſt

* See the Chapter on Amauroſis.

appearance

appearance of fungus. After having examined the naſal canal I introduced into it a ſilver tube, which was to remain there permanently, exactly ſimilar to that recommended by Bell;* and having injected ſome warm water, in order to cleanſe the inſide of the ſac and canula, I brought the lips of the wound together, and retained them in contact by means of ſome ſtrips of adheſive plaſter, a compreſs, and the *monoculus* bandage.

The ſubſequent inflammation of the ſac and palpebræ was very conſiderable, and it was neceſſary to take away blood copiouſly, to cover the parts with an emollient and anodyne plaſter, and to confine the patient to a low diet. In a week the inflammation abated, and the lips of the wound were united and conſolidated; in ſhort every thing went on ſurpriſingly well; there was no longer any weeping of the eye, and three weeks after the operation the patient was diſcharged from the hoſpital perfectly cured. After continuing well for a year, ſhe began to complain of a ſenſe of weight and pricking between the internal angle of the left eye and the noſe, and the weeping of the eye again returned. A ſmall tumour appeared in the ſituation of the lachrymal ſac, which on being preſſed gave pain, and gradually inflamed.

* A Syſtem of Surgery, vol. iv. plate 42. fig. 5, 6.

It ultimately ſuppurated and burſt externally, diſcharging matter mixed with tears. In this ſtate the girl returned to the hoſpital about 19 months after the diviſion of the ſac and introduction of the tube into the naſal canal.

On preſſing this tumour, even ſlightly, it was eaſy to diſcover that it contained an extraneous body, and I had no doubt that this was the metallic tube which had been formerly placed in the naſal canal. Without therefore regarding the opening formed by the abſceſs, I laid the ſac again completely open, from the tendon of the *orbicularis palpebrarum* to the loweſt part, and found the tube lying acroſs it; I extracted it and found that it was completely filled with a compact calcareous ſubſtance; after which I only filled the ſac with ſoft lint and covered it with a compreſs and bandage.

On removing the firſt dreſſing, which was two days after, the whole internal ſurface of the ſac exhibited a florid, irregular, and fungous appearance. The probe however paſſed with perfect facility through the naſal canal into the correſponding noſtril, and I therefore introduced into it without delay a bougie one inch and a half in length, tied with a waxed thread, and puſhed ſo far downwards that its upper end might not project into the cavity of the ſac. For the purpoſe of deſtroying the fungus formed by the internal ſurface of the ſac, I employed at firſt,

firſt, for ſeveral days, a doſſil of lint dipped in the liniment, conſiſting of the hydrarg. nitrat. rub. and mucilage of gum arabic; I afterwards filled the whole cavity of the ſac repeatedly with the hydrarg. nitrat. rub. in powder.

At the end of ſeven weeks the cicatrix began to extend from the margin of the wound towards the bottom of the ſac, which was now almoſt reduced to its natural ſize. The dreſſing only conſiſted of dry lint, or ſometimes of lint dipped in the aqua calcis and mel roſæ, with a few drops of ſpirit of wine added to them. In 20 days more the cavity of the ſac was completely healed, nor was it neceſſary to uſe the argentum nitratum more than twice or three times. I now withdrew the bougie from the naſal canal and introduced a leaden tent mounted with a plate, which the patient wore for a month, when it was removed, and the external orifice of the ſac ſuffered to cloſe without ſcarifying the edges.

The tears paſſed into the noſtril and no longer regurgitated from the *puncta*, and collected upon the eye. Injections alſo thrown into the *puncta* paſſed freely into the noſe. If, however, from any cauſe the ſecretion of tears was increaſed, a ſmall portion of that fluid iſſued from the contracted aperture remaining in the ſac, which occaſioned no ſenſible inconvenience, as the eye remained conſtantly clear. This ſmall

and occasional discharge from the almost imperceptible aperture in the sac gradually diminished, and after four months completely disappeared. To this last instance I might add a great number of similar histories, which I omit, not only for the sake of brevity, but because they would not afford a clearer illustration of what has been advanced on this subject.

## Case IX.

An elderly woman, 55 years of age, was admitted into the practical school of surgery from the country, on account of a small and somewhat indolent tumour, the size of a small nut, which she had had for a considerable time, situated between the internal angle of the right eye and the nose. In pressing upon this tumour, which readily yielded, a considerable quantity of greenish offensive matter issued from the corresponding nostril; and a small quantity of the same viscid fluid from the *puncta lachrymalia* upon the eye.

The woman stated, that she had been affected with this disease during 15 years, and that it began with an immoderate gumming of the eye, which she had never attended to; that the tumour had frequently burst externally, attended with relief, and closed again spontaneously; that within the last year, after much swelling of the whole face and violent pains within the root

root of the noſe, ſhe was relieved by the diſcharge of a conſiderable quantity of fetid matter from the right noſtril, but that notwithſtanding the tumour continued to increaſe every day more and more. The edges of the eye-lids of the right ſide were rigid, indurated, red, and in a fungous ſtate internally, and the ſebaceous glands enlarged.

I puſhed the point of a biſtoury immediately below the tendon of the *orbicularis palpebrarum*, and directed the inſtrument againſt the *os unguis*; then, following the fold of the inferior eye-lid, I laid the ſac completely open. In the act of dividing it a conſiderable quantity of matter guſhed out; oppoſite the inciſion I found the *os unguis* wanting, and round this part there were portions of the ethmoid bone denuded. The opening which was formed by the deficiency of the *os unguis*, was large enough to admit a thick writing quill, and communicated directly with the right noſtril. The pituitary membrane around this opening was equally deſtroyed; I took great pains to diſcover the naſal canal, but without ſucceſs. The cavity of the tumour was filled with lint, and a poultice of bread and milk applied upon the eye-lids, in order to ſoften their hard and rigid edges.

On removing the dreſſings the following day, I found the whole internal ſurface of the ſac converted into a fungous ulcer. I filled the

cavity very exactly with lint dipped in the cauſtic liniment mentioned in the preceding caſe; and, in order to prevent it from paſſing into the noſtril, I previouſly introduced into the opening formed by the deficiency of the bone, a ſmall ſindon with a waxed thread paſſed through the centre of it, ſimilar to that which is uſed after the operation of trepanning the cranium. Beſides a copious diſcharge of matter from the enlarged ſac, pieces of ſlough and ſometimes particles of carious bone came away at each dreſſing. The parts where the fungus was more prominent than the reſt, were ſprinkled with the hydrargyrus nitratus ruber alone, or mixed with alum, and occaſionally touched with the argentum nitratum.

By continuing this treatment for 30 days the ulcer aſſumed a healthy and granulating appearance, and had a tendency to contract in every direction. The treatment afterwards conſiſted in dreſſing the wound with dry lint, and occaſionally touching the edges of the large orifice, leading from the ſac into the noſtril, with the argentum nitratum.

Towards the 60th day the ulcer was completely healed, and the ſac nearly reduced to its natural ſize, and by the uninterrupted uſe of the ophthalmic ointment of Janin, morning and evening, and the vitriolic collyrium three or four times a day, the palpebræ had recovered their

their natural healthy condition. The edges of the external orifice of the ſac were now permitted to cloſe, the tears being directly diſcharged into the noſtril through the large opening formed in the poſterior part of the ſac by the deficiency of the *os unguis,* and the woman left the hoſpital perfectly cured.

## CHAP. II.

### OF THE HORDEOLUM.*

THE hordeolum, ſtrictly ſpeaking, is only a ſmall bile which forms upon the margin of the palpebræ, moſt frequently towards the great angle of the eye.

Like the furuncle, this ſmall tumour is of a dark red colour, highly inflamed and much more painful than might be expected from the ſmallneſs of its ſize; which ariſes partly from the violence of the inflammation, by which it is produced, and partly from the exquiſite ſenſibility and tenſion of the ſkin which covers the edges of the eye-lids. Hence it is that the hordeolum, in perſons of delicate and ſenſible habits, frequently occaſions fever and reſtleſſneſs; its ſuppuration is ſlow and imperfect, and when matter is formed in it, it does not appear diſpoſed to burſt.

This particular form of inflammation, which might be called *furuncular*, differs in ſeveral reſpects from common *phlegmonous* inflammation. The former commences in the ſkin, extends itſelf downwards into the ſubjacent cellular membrane, and produces a more or leſs extenſive deſtruction of it; the *phlegmonous* in-

* Κριθη, χαλαζα, grando, ſtye, ſtithe, or ſtian.

flammation

flammation, on the contrary, originates in the cellular membrane, the vitality of which it does not deſtroy, and is afterwards propagated externally to the ſkin. The *furuncular* inflammation is quickly arreſted, and forms a ſmall, circumſcribed, hard, and very painful tumour, which, though elevated upon the ſkin, does not contain extravaſated coagulable lymph, but is completely filled with mortified or diſorganized cellular membrane; while on the other hand the *phlegmonous* inflammation is diſpoſed to propagate itſelf extenſively through the cellular membrane, into the cells of which a conſiderable quantity of coagulable lymph is inceſſantly poured, which occaſions the tumefaction. In conſequence of the furunculus being completely filled with mortified or diſorganized cellular membrane, ſuppuration either does not take place in it, or very imperfectly, and never in the centre of the tumour, but at its circumference where it is in contact with the ſound parts; while in the phlegmon a true and complete ſuppuration is formed preciſely in the centre of the inflamed cellular membrane, which, when the matter is diſcharged, ſpontaneouſly contracts and recovers its natural ſtate and functions. In the ſecond ſtage of the furunculus, the ſkin which covers it ulcerates and burſts in one or more points, and diſcharges a very ſmall quantity of ſerous fluid, afterwards the ſmall portion of

mortified

mortified cellular membrane, which formed the body and baſe of the tumour, comes away in the form of an extraneous ſubſtance, and the cavity which remains cloſes and heals in a ſhort time. All theſe phœnomena, peculiar to the *furuncular* inflammation, are common to the Hordeolum, the nature of which does not conſequently differ from that of the furunculus.

The treatment of the Hordeolum therefore, as well as that of the furunculus, when the tumour occupies the ſubjacent cellular membrane, forms an exception to the general rule, that the beſt termination of inflammatory tumours is that of reſolution. For whenever the *furuncular* inflammation has extended ſo deeply as to deſtroy a portion of the cellular membrane, the reſolution of the tumour cannot in any manner be effected, or at moſt imperfectly; hence this mode of termination would be rather injurious, ſince a greater or ſmaller portion of the cellular ſubſtance deprived of vitality would be left; which ſooner or later muſt occaſion a reproduction of the hordeolum, or degenerate into a hard and indolent ſubſtance, which would deform the margin of the eye-lid.

The reſolution of the incipient hordeolum may be accompliſhed in that ſtage of it, in which the inflammation affects only the ſkin, and not the ſubjacent cellular membrane, as happens on the firſt appearance of the diſeaſe;

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in which caſe repellent applications are advantageous, eſpecially the repeated application of cold to that part of the margin of the eye-lid, which is beginning to appear red, by means of a convenient piece of metal, as the extremity of a key, a piece of money, or what is ſtill preferable, ice. But if the diſeaſe has already affected and deſtroyed a ſmall portion of the ſubjacent cellular membrane, every repellent application is not only uſeleſs but injurious, and recourſe ſhould be had to the aſſiduous uſe of local emollient and anodyne remedies.

In the ſecond ſtage of the diſeaſe therefore the hordeolum and palpebræ ſhould be covered with a warm poultice made of bread-crumb boiled in new milk, with a little ſaffron or melon-pulp added to it, and renewed every two hours, and even oftener in the winter ſeaſon.

The appearance of a white ſpot upon the moſt elevated part of the hordeolum ſhould not induce the ſurgeon to be haſty in opening it, in order to give iſſue to the very ſmall quantity of ſerous matter which is formed between the ſkin and the diſeaſed and mortified cellular membrane. It will be better that he ſhould wait until the ſkin ſurrounding this whitiſh ſpeck become conſiderably thinner, that it may burſt and open itſelf ſufficiently to allow of the ſmall quantity of ſerum, and of the whole of the ſmall portion of corrupted cellular membrane, which formed

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the principal part of the tumour, being eaſily diſcharged. If the portion of membrane be ſlow in coming away through this aperture, the ſurgeon, by preſſing lightly upon the eye-lid, at the baſe of the ſmall tumour, ſhould force it out; by this means all the ſymptoms of the diſeaſe will diſappear, and the cavity left by the mortified cellular membrane, which formed the centre of the tumour, will be entirely cloſed and healed in 24 hours.

It ſometimes, though rarely, happens, that this proceſs of nature, deſigned to ſeparate the mortified portion of the cellular membrane from that which is ſound, is but imperfectly performed, and that a ſmall portion of yellowiſh diſorganized cellular ſubſtance ſtill remains at the bottom of this ſmall cavity, which by adhering prevents the ſmall tubercle from being completely healed. In theſe caſes, in which little or no advantage can be derived from continuing the application of the emollient poultice, the ſurgeon ſhould touch the bottom of the cavity with the point of a camel's hair pencil dipped in the ſulphuric acid, one or more times, until this remaining portion of cellular membrane deprived of life be alſo completely detached from the ſound parts and expelled; after which the ſmall cavity that remains will very ſpeedily cloſe.

If,

If, after the cure of the hordeolum the eye-lid upon which it was ſituated, remain a little tumefied and edematoſe, it may be eaſily removed by the application of the aqua lytharg. acet. comp. with a little ſpirit of wine added to it.

There are ſome perſons who are particularly ſubject to this diſeaſe. This ariſes moſt frequently from ſordes in the primæ viæ, in conſequence of their living on acrid and irritating food, and indulging in ſpirituous liquors. Such perſons ſhould obſerve a better regimen than that which they have been accuſtomed to, and ſhould take occaſionally a pint of the decoction of the triticum repens, or of milk whey with a grain of the antimon. tartariz. in divided doſes, particularly when ſymptoms of indigeſtion of the ſtomach are preſent. As a local and preſervative remedy, the vitriolic collyrium may be dropped into the eyes, and the eye-lids waſhed with it once a day.

CHAP.

## CHAP III.

### OF ENCYSTED TUMOURS OF THE EYE-LIDS.

ENCYSTED tumours are very frequently formed in the eye-lids. Some writers indeed pretend that they are more frequently met with in the eye-lids than in other parts of the body, in conſequence of the former being more abundantly furniſhed with ſebaceous glands, as thoſe of Meibomius, from the preternal increaſe of ſome of which they have preſumed theſe follicular tumours to originate.

As ſuch a diſcuſſion is of no practical advantage, I willingly omit it, and ſhall merely obſerve that the glands of Meibomius occupy the edges of the palpebræ, while ſmall encyſted tumours do not appear more frequently in this than in other parts of the eye-lids, where theſe glands do not exiſt; and that it is alſo proved that follicular tumours originate as well from the cells of the reticular membrane, as from theſe glandular bodies.

An encyſted tumour of the eye-lids in its commencement is not larger than a millet-ſeed

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or a ſmall pea, and it is only after a conſiderable time that it arrives at the magnitude of a bean, and ſometimes of a filbert. Theſe tumours do not in general excite pain, but only occaſion ſome uneaſineſs, when having acquired a conſiderable bulk they prevent the free motion of the eye-lid, produce a partial depreſſion of it, or preſs upon the globe of the eye.

With reſpect to the ſeat of theſe tumours it appears to me, from numerous obſervations, that they are, from their commencement, moſt frequently leſs covered by the internal membrane of the eye-lids, than by the integuments and muſcular fibres; ſo that their baſes are in general ſo ſuperficially placed upon the internal ſurface of the eye-lids, that when the latter are everted, theſe tumours are ſeen as it were uncovered, and the yellowiſh follicule appears tranſparent through the fine internal membrane of the palpebræ which covers them.

The frequent unavailing attempts which I have made to obtain a reſolution of theſe encyſted tumours on their firſt appearance, ſometimes by employing the remedy ſo much extolled by Morgagni,* conſiſting of the aqua reginæ, or elder-flower water, and a moderate quantity of the aqua ammoniæ, ſo as not to excite any heat or uneaſineſs in the ſkin of the

* Epiſt. anat. xiii. 2.

eye-

eye-lids; at other times by applications of reſolvent gums and local mercurial frictions; have convinced me that the only effectual method of curing this diſeaſe, eſpecially when it has exiſted for ſome months, is the extirpation of the tumour.

And as theſe follicular tubercles are generally much more ſuperficially ſituated towards the internal than the external ſurface of the palpebræ, ſo I am authorized, from obſervation and experience, to believe that the beſt method of removing theſe tumours is to extract them from the internal ſurface of the eye-lid, although it has been even lately aſſerted to the contrary by ſurgeons of high and deſerved reputation. For, by extracting the ſmall follicular body from the internal ſurface of the eye-lid, the inciſion which is required is entirely ſuperficial; the ſeparation of the cyſt from the ſurrounding parts is eaſily effected; the after-treatment is of no importance; and there does not remain the ſmalleſt veſtige upon the integuments of the palpebræ, either of the preceding diſeaſe, or of the operation which has been performed.

The only exception of any importance which can be offered to this method of treatment, is in the caſe where the encyſted tumour is ſo ſituated upon either of the palpebræ, that the eye-lid cannot be everted ſufficiently to expoſe the baſe of the tumour, and to admit of its

being completely removed: as in the caſe where the tumour is ſituated immediately under the external or internal commiſſure of the eye-lids, ſo as to extend under the arch of the orbit, a circumſtance which has occurred to me oftener than once.

It may not be improper on this occaſion to relate the hiſtory of a caſe of encyſted tumour ſituated deeply in the orbit which was treated by Meſſrs. Bromfield and Ingram. This tumour, after having cauſed pain at the bottom of the orbit of the eye during ſeveral years, diminution of ſight, and afterwards total blindneſs, ultimately forced the eye-ball out of its ſocket, and produced an everſion of the lower eye-lid. On examining the protruded eye-ball with the finger, theſe ſurgeons perceived, on the external and lower ſide, a fluctuation, which they imagined to ariſe from an encyſted tumour; and it was agreed that it ought to be opened. For this purpoſe Mr. Bromfield, having directed that the lower eye-lid ſhould be preſſed upwards as much as poſſible, and held very firmly in that poſition, divided the integuments with a ſcalpel, in the direction of the inferior edge of the orbit, beyond the conjunctiva, and of a ſufficient extent to enable him to introduce his finger behind the ball of the eye, preciſely upon the ſeat of the cyſt. The operator guided by his finger penetrated the cyſt, and there iſſued from it a pellu-

cid fluid, ſufficient in quantity to fill a ſmall wine glaſs. Having pauſed a little he drew the empty cyſt towards him by means of two ſmall hooks, removed it and filled the wound with ſoft lint. In 24 hours the head and neck became enormouſly ſwollen; this ſymptom however was relieved, by the uſe of internal antiphlogiſtic remedies and mild applications, and the wound healed in leſs than a month. The lower eye-lid gradually returned to its natural poſition, and the eye-ball retired within the orbit. The narrator adds, that having an opportunity of ſeeing this patient again, five months afterwards, he found that he could diſtinguiſh, with the eye which had been ſo dangerouſly affected, a ſtrong light from darkneſs. *Medical Obſerv. and Enquiries, vol.* iv. *page* 371. A caſe ſimilar to this is related in the treatiſe on the diſeaſes of the eyes, by Saint-Yves, chap. 21, under the title, *Opération d'une tumeur ſinguliére dans l'orbit.*

But theſe are rather to be regarded as encyſted tumours of the parts in the vicinity of the eye-lids, than of the eye-lids themſelves; and even if it were deſirable to claſs theſe particular caſes with the latter, they would not in the leaſt detract from the propriety and utility of the method of treatment here recommended.

Suppoſing then the encyſted tumour to occupy the upper eye-lid, the patient being ſeated

ſeated and his head firmly ſupported, an able aſſiſtant, placed behind or on one ſide of him, ſhould turn out the upper eye-lid, in ſuch a manner that by placing the point of the fore-finger of one hand upon the tumour, and the fore-finger of the other covered with a piece of fine rag, upon the everted margin of the palpebra, the follicule may be made to project as much as poſſible from its internal ſurface. The ſurgeon ſtanding before the patient, with a lancet or ſmall convex-edged ſcalpel * ſhould, with the hand unſupported, divide the fine internal membrane of the palpebra covering the follicule, in the direction of the edge of the eye-lid, and for a ſufficient extent to allow of the tumour paſſing eaſily out and projecting beyond its internal membrane: the follicule being then taken hold of with the forceps,† or a ſmall hook, ſhould be drawn out and completely ſeparated from all its attachments to the ſurrounding parts, either by the ſcalpel or by a ſtroke of the curved ſciſſars.‡ The eye-lid then being returned to its ſituation ſhould be covered with a compreſs dipped in the aqua lythargyri acetati comp. ſupported by the *monoculus* bandage.

If the encyſted tumour be ſituated in the lower eye-lid, the aſſiſtant ſhould place himſelf before the patient, and the ſurgeon behind, or

* Tab. III. fig. 12. † Tab. III. fig. 8.
‡ Tab. III. fig. 4.

on one ſide, as he may find moſt convenient, and proceed to the operation in the manner already deſcribed. In operating on children, whether on the upper or lower eye-lid, the moſt convenient poſition is to lay them on a table of a convenient height, with the head raiſed by a pillow, and the hands and feet firmly held by aſſiſtants.

When the ſurgeon is deprived of an intelligent aſſiſtant, the operation may be performed in the following manner. The operator ſhould turn out the eye-lid with the point of the fore-finger of his left-hand, and place the extremity of the thumb of the ſame hand upon its everted margin, in order to hold it more ſecurely, and to make the root or baſe of the follicule project as much as poſſible from the internal ſurface of the eye-lid. Then, with a lancet or ſmall convex-edged ſcalpel in the right hand, he ſhould make a ſlight inciſion through the internal membrane upon the tumour, in the direction from one canthus of the eye towards the other, and with the point of the ſame inſtrument, inſinuated obliquely between the cyſt and internal membrane of the palpebra, ſhould ſeparate it from all its ſurrounding adheſions. Having done this, with the point of the index finger of the left hand, which had been placed from the beginning behind the tumour, he ſhould preſs upon it ſo as

to make the cyſt paſs completely through the inciſion made in the internal membrane of the eye-lid, which had before covered it. Then laying aſide the ſcalpel, and taking hold of the curved ſciſſars, he ſhould include the baſe of the follicule in them, and at one ſtroke ſeparate it entirely from its remaining attachments, and immediately return the eye-lid to its natural poſition.

In employing this method of extirpating encyſted tumours of the eye-lids, it is not neceſſary to be ſcrupulous about the ſeparation of the very minute particles of the cyſt, when it is opened or burſts during the operation. For when the principal part of the follicule is removed, and the eye-lid reſtored to its ſituation, the tears, eſpecially if the lower eye-lid be operated on, enter and fill the cavity left by the tumour, and conſequently prevent the lips of the wound from uniting by the firſt intention. When the proceſs of ſuppuration therefore is eſtabliſhed, there is no neceſſity to employ any other means, as the ſmall particles of the follicule which have accidentally remained behind, adhering to the bottom of the ulcer, are gradually looſened and thrown off with the matter which is diſcharged from it. If, however, this proceſs of nature ſhould not ſpeedily take place, and the integuments be not readily depreſſed and contracted, in conſequence of hav-

ing been too much diſtended during the continuance of the diſeaſe, the cure may be accelerated by everting the eye-lid, and touching the bottom of the cavity of the wound with the argentum nitratum, taking care to waſh the eye immediately afterwards with new milk. In general, however, this expedient is unneceſſary, as every external veſtige of the diſeaſe commonly diſappears in the courſe of four days from the operation, and on everting the eye-lid, the part where the inciſion was made is found covered with a mucous matter, the bottom of the ſmall cavity nearly on a level with the internal ſurface of the eye-lid, and in the courſe of eight days it becomes perfectly healed.

It is very ſingular that ſome of the moſt diſtinguiſhed writers in ſurgery of the preſent day ſhould ſeem ſo adverſe to this method of removing encyſted tumours of the eye-lids, while they recommend the extirpation of ſimilar follicular tumours of the cheek from the inſide of the mouth, not only to avoid an external wound of the parotid duct, but, becauſe, according to their own obſervations, theſe tumours are much more ſpeedily cured when they are removed from the inſide of the mouth, than when the operation is performed externally. The ſame advantage of a ſpeedy cure is equally obtained in the extirpation of encyſted tumours from the internal ſurface of the palpebræ, which is not

leſs

leſs authorized by practice, and is more eaſily executed.

I ſhall conclude this chapter with ſubjoining ſome obſervations relative to a particular ſpecies of encyſted tumour of the eye-lid, which in ſome reſpects differs materially from that which I have already ſpoken of, and which is not unfrequently met with in practice. This is a ſmall, hard, and indolent tubercle, generally rather larger than a millet-ſeed, which ariſes preciſely upon ſome part of the edge of the eye-lid among the cilia, and is of a white colour, reſembling the white of a boiled egg. When this tubercle is of long ſtanding it contains a ſubſtance exactly ſimilar to that of the albumen ovi when boiled, and is merely covered with a very thin and tranſparent ſkin, which is cloſely united with the denſe matter contained within it.

M. Aurelius Severinus,* who has given a more accurate deſcription of this diſeaſe than any other writer, ſays: *Tuberculi cujuſdam exigui in clivo palpebræ ciliari naſcentis, et ſe cum pilis oblique proferentis; quo magnitudine, duritieque mihi ſementulam refert, ſi tantummodo flavum hujus colorem in exquiſitum alborem intelligas mutatum.— Corticulam duriorem, ac ferme corneolam huic tuberculo adverti; uſque adeo ut medicamentis acer-*

* De novis obſerv. abſcess. § De miliolo exterioris palpebræ tuberculo.

*rimis, id eſt liquidis cauſticis, tentatum, nullam vel tactûs vel coloris mutationem ſenſerit.—Continet molleculam chartæ bombicinæ madidæ ſimilem portiunculam.*

The ſituation of this tumour on the very edge of the eye-lid, the extreme fineneſs of the pellicle which covers it, as well as the ſmallneſs of its ſize, and the hardneſs of the matter which it contains, render it moſt convenient to remove it from the external ſurface of the eye-lid. This may be eaſily executed by including it exactly at its baſe, with the curved ſciſſars, or by paſſing the point of a lancet through the root of it, ſo as to remove the whole tubercle cloſe to the edge of the eye-lid. When the bleeding has ceaſed the divided parts may be covered with a ſmall piece of court plaiſter. On the following day the wound may be touched with the argentum nitratum and the reſt of the cure left to nature. On the exfoliation of the eſchar the part will be found completely healed.

## Case X.

A child, the daughter of a nobleman of Pavia, had had for a year and a half an encyſted tumour of the upper eye-lid of the right ſide, the ſize of a ſmall pea.

For the purpoſe of extirpating it, I placed the child upon a table of a convenient height, with the head ſupported upon a pillow, and the arms

and

and legs firmly held by two aſſiſtants. I deſired the aſſiſtant ſituated behind the head of the child to evert the eye-lid by placing the point of the fore-finger of his left hand upon the integuments and the tumour, and one finger of the right hand covered with a piece of fine cloth upon its everted margin.

Having placed myſelf on the ſide of the patient, with the hand unſupported I divided the internal membrane of the palpebra longitudinally, at the part covering the baſe of the tumour, which was diſtinguiſhable by its yellowiſh colour. Through this inciſion, which was little more than three lines in length, almoſt the whole of the follicule immediately paſſed out; I took hold of it with the forceps, and having raiſed it, completely detached it. The eye-lid was then replaced, and covered with a compreſs dipped in the aqua lytharg. acetat. comp. and a bandage.

The child, which had been unruly, became quiet, and almoſt immediately fell aſleep. On the third day the eye-lid was a little tumefied and inflamed; I directed a ſmall bag of emollient herbs boiled in milk, to be applied upon it, and the child remained out of bed as uſual, and was perfectly cheerful. On the ſeventh day the tumefaction of the eye-lid had entirely ſubſided, and on carefully everting it I found the wound perfectly healed. There was not

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the ſmalleſt veſtige of the diſeaſe on the external part of the eye-lid.

## Case XI.

Signor Luigi Gozzani, of Novara, a medical ſtudent in this univerſity, deſirous of being freed from the inconvenience and deformity occaſioned by an encyſted tumour, nearly the ſize of a bean, ſituated upon the left ſuperior eye-lid, ſubmitted to the operation in the preſence of a great number of his fellow-ſtudents in medicine and ſurgery.

Having placed himſelf in a chair, I turned out the upper eye-lid with the point of the fore-finger of my left hand, and retained it in this poſition by applying the point of my thumb upon its internal margin. I made an inciſion with a lancet in that part of the internal membrane of the palpebra, which covered the baſe or root of the yellow follicular humour, and carrying the point of it circularly between the tumour and the internal membrane of the eye-lid, ſeparated it entirely; then, by making a greater degree of preſſure on the tumour with the point of the fore-finger of my left hand, I forced it almoſt entirely out through the inciſion, and by including its baſe in the curved ſciſſars, removed it at a ſingle ſtroke, and returned the eye-lid to its ſituation.

This

This gentleman ſaid, that the pain attending the operation was very trifling, and not greater than that occaſioned by bleeding: during the two following days the eye-lid was ſlightly inflamed and ſwollen, and bags of emollient herbs were applied upon it. On the fifth day the patient found himſelf completely well, without its being poſſible to diſtinguiſh in which of the upper eye-lids the tumour had been ſituated; and on the ſeventh he returned to his ſtudies as uſual.

## Case XII.

A poor woman, 40 years of age, came to the practical ſchool to conſult me on account of an encyſted tumour, the ſize of the end of the finger, which ſhe had had for ſeveral years upon the left ſuperior eye-lid towards the external angle, and which for ſome weeks had occaſioned an unuſual ſenſe of weight, and prevented the eye from being ſufficiently opened. I propoſed the operation, to which ſhe aſſented, but for ſome particular reaſons refuſed to remain in the hoſpital after the operation, propoſing to follow in other reſpects whatever I might direct.

The patient being ſeated, I everted the upper eye-lid with the fore-finger and thumb of my left hand, holding the point of the fore-finger firmly againſt the tumour, in order to make it project as much as poſſible towards the internal membrane

brane of the eye-lid, and having ſlightly divided the internal membrane upon the baſe of the tumour with a convex-edged ſcalpel, the follicule immediately paſſed out of the inciſion. I carefully ſeparated it from the ſurrounding parts, by inſinuating the point of the ſcalpel obliquely, and carrying it round between the follicule and internal membrane of the palpebra, and then embracing the tumour as cloſely as poſſible to the ſubſtance of the eye-lid with the curved ſciſſars, I removed it at one ſtroke. The eye-lid was then returned to its ſituation, and covered with a dry compreſs and bandage, and the patient returned home.

I waited in vain for a week, flattering myſelf that the patient would give ſome account of herſelf, and at length ſhe was found, and appeared perfectly well. On being aſked what inconvenience ſhe had ſuffered after the operation, ſhe replied none, except a little ſwelling and inflammation of the eye-lid during the firſt three days; which, however, had not prevented her from attending her family affairs.

## Case XIII.

In the act of dividing the internal membrane of the palpebra for extracting an encyſted tumour, of a ſize rather larger than a pea, ſituated on the lower eye-lid of a child 10 years of age, I accidentally opened the cyſt at the ſame time,

from

from which the whole of its contents, conſiſting of a little milky concrete ſubſtance was immediately diſcharged. I laid hold of the cyſt in ſeveral places with the forceps, firſt freeing it as much as poſſible from its attachments to the ſurrounding parts; but it eluded me, nor could I by any means detach it with ſuch exactneſs, or remove it with the curved ſciſſars cloſe to the ſubſtance of the eye-lid, as not to leave ſome ſmall particles of it adhering to the bottom and ſides of the cavity. After having removed, however, a ſmall portion of the edges of the inciſion made in the internal membrane, the eye-lid was returned to its ſituation.

During the two firſt days the eye-lid was a little tumefied and inflamed as uſual, and on everting it, towards the end of the fourth day, I found the bottom of the wound covered with a glutinous matter. On the ſeventh day the cavity was quite ſuperficial, contracted, and nearly healed; and on the ninth the patient was perfectly cured, without any elevation or deformity of the eye lid remaining externally. I might here have related a very conſiderable number of caſes ſimilar to this.

## Case XIV.

A ſhoe-maker's boy had for ſeveral years an encyſted tumour, nearly in the centre of the right inferior eye-lid, which gradually increaſed

to

to the ſize of a nutmeg. It began alſo to produce an everſion of the eye-lid and a weeping of the eye.

I removed it from the internal ſurface of the eye-lid in the manner above-mentioned; but as the tumour was full of a milky ſubſtance, half concrete and half fluid, in making the inciſion the cyſt was punctured, and the whole of the matter contained in it was immediately diſcharged. I was unable to ſeparate the cyſt from the neighbouring parts with the exactneſs that I could have wiſhed; I removed, however, as much of it as I could, and returned the eye-lid to its ſituation, in expectation that nature by means of ſuppuration would complete the reſt of the cure. During the two following days the eye-lid was ſwollen and inflamed, upon which I applied a poultice of bread and milk. On the fifth day the mucous ſuppuration appeared, the bottom of the cavity then began to aſſume a florid appearance, to contract and approach the internal ſurface of the eye-lid. After ſome days the ulcer became ſtationary, and there yet remained a little elevation of the eye-lid at the part where the tumour had been ſituated. I turned out the eye-lid and touched the cavity with the argentum nitratum which only occaſioned a temporary heat in the patient's eye, as I took care to drop a little milk immediately afterwards between the palpebræ and eye-ball, and continued

nued the uſe of it for half an hour. On the following day the eye-lid became again tumefied and inflamed, and the mucous ſuppuration appeared again in greater quantity than at firſt. In the courſe of eight days more the cavity left by the encyſted tumour cloſed and entirely diſappeared, both externally and internally; and the patient was diſcharged from the hoſpital perfectly cured, without the leaſt trace of the diſeaſe by which he had before been diſfigured.

CHAP.

## CHAP. IV.

### OF THE CILIA WHICH IRRITATE THE EYE.

THIS diſeaſe, which is termed Trichiaſis, preſents itſelf under two diſtinct forms: the firſt is where the cilia are turned inwards, without the tarſus having changed its natural poſition and direction; the ſecond conſiſts in a morbid inclination of the tarſus, and conſequently of the eye-laſh towards the ball of the eye.

The firſt form of this diſeaſe is very rare, nor has it come under my own obſervation more than once, and in this inſtance only ſome of the hairs had changed their direction. The ſecond ſpecies or form of *Trichiaſis*, or that which conſiſts in a folding inwards of the tarſus and cilia at the ſame time, is that which is commonly met with in practice. This may be either complete, affecting the whole of the tarſus; or incomplete, occupying only a certain portion of the edge of the eye-lid, and moſt frequently near the external angle of the eye; ſometimes the diſeaſe is confined to one eye-lid only, at other times it affects both, and occaſionally the patient is afflicted with it in both eyes.

To theſe two ſpecies of *Trichiaſis* ſome writers have added a third, which they call *diſtichiaſis*,

*chiaſis*, and which they ſuppoſe to be produced by a double and unuſual row of hairs. But this third ſpecies is only imaginary, and the reaſon of ſuch ſubdiviſion ſeems to have ariſen from a want of recollecting what was long ago remarked by Winſlow * and Albinus † on the natural arrangement of the cilia; that although their roots appear to be diſpoſed in one line only, they nevertheleſs form two, three, and in the upper eye-lid even four ranges of hairs, unequally ſituated, and as it were confuſed. Whenever, therefore, in conſequence of diſeaſe a certain number of hairs are ſeparated from each other in a contrary direction and diſorderly manner, the eye-laſh will appear to be compoſed of a new and unuſual row of them, while in fact there has been no change either with reſpect to their number or natural implantation.‡

It is not an eaſy matter to determine preciſely what are the cauſes which ſometimes occaſion a ſmall number of the hairs to deviate from their natural direction, while the tarſus remains in its poſition. They are generally attributed to cicatrices which take place upon the tarſus in conſequence of previous ulceration, by which the cilia fall off, and thoſe which are naturally

* Expoſition Anatom. Trait. de la téte, § 278.

† Acad. Annotat. lib. iii. cap. 7.

‡ Maître-Jan made the ſame obſervation, a long time ago, as may be ſeen in his Traité des maladies de l'œil, p. 494. *Léveillé.*

growing are prevented from taking their proper direction. But it is proper to remark, that this cauſe is not the only one, ſince in the caſe which occurred to me, two or three hairs were turned inwards againſt the eye-ball, although there had been neither ulceration, nor cicatrization of any part of the tarſus.

For my own part I am inclined to think, that the ſmall ulcers and cicatrices, which are occaſionally formed on the internal margin of the tarſus, rather give riſe to the ſecond form of the diſeaſe, or the inverſion of the edge of the eye-lid, and conſequently of the cilia towards the ball of the eye. As theſe ulcers are of a corroding nature, and when neglected deſtroy the ſubſtance of the internal membrane of the palpebræ near the tarſus, it neceſſarily follows, that in proportion as they heal and contract themſelves, they draw along with them and turn inwards the tarſus, and conſequently the hairs which are implanted in it. And as theſe ſmall ulcers do not always occupy the whole extent of the internal margin of the eye-lid, but are ſometimes confined to a few lines in the middle or extremity, near the external angle of the eye-lid, ſo after the cicatrices are formed, the whole of the hairs are not always turned inwards, but only a certain number of them which correſpond to the extent of the ulcers previouſly ſituated along the internal margin of the tarſus.

Indeed

Indeed in every caſe of imperfect trichiaſis, in conſequence of a cicatrix of the internal ſurface of the edge of the eye-lid, a very ſlight examination will ſhow, that the tarſus and cilia are every where in their natural ſituation, except oppoſite the part where the ulcers had formerly exiſted; and if the eye-lid be everted, it will be evident that the internal membrane near that part of the margin correſponding to the ſeat of the trichiaſis is pale, rigid, and callous, and that from this contraction the inverſion of its cartilaginous border is evidently derived, as well as the morbid inclination of the hairs towards the globe of the eye.

Beſides theſe cauſes, there are others capable of producing the ſame injurious effect. In the firſt place the chronic ophthalmia of long ſtanding, as that which ariſes from ſcrofula or the ſmall-pox, which becoming gradually worſe and worſe, keeps the integuments of the eye-lid for a conſiderable time in a ſtate of diſtenſion and œdema, and induces a relaxation of them, by which the cartilaginous border of the eye-lid ultimately loſing a proper and firm ſupport in the integuments, inclines towards the eye-ball, and afterwards turns inwards, and draws the cilia along with it in the ſame improper direction. The ſame unpleaſant effect, independently of the relaxation of the integuments, is frequently produced by a ſoftening of the cartilage of the tarſus, in conſequence of a

copious and long continued puriform diſcharge from the ciliary glands, by which the cartilage of the tarſus becomes either wholly or partially incapable of ſupporting itſelf erect, or of preſerving the curve neceſſary to its perfect coaptation with the tarſus of the other eye-lid; hence the cartilage, either in the whole, or a part of its extent becomes relaxed and folded inwards, and draws along with it the correſponding hairs againſt the ball of the eye.

Theſe cauſes are not unfrequently found combined together, and they are alſo often accompanied with cicatrices of the membrane which inveſts the internal margin of the tarſus. * Some pretend that the trichiaſis is occaſionally produced by a ſpaſmodic contraction of the orbicularis palpebrarum. But I muſt confeſs that this has never come under my own obſervation, and it is difficult to believe that the ſpaſm of this muſcle, however violent, can produce a folding inwards of the tarſus and cilia, much leſs that it ſhould continue to act as a permanent cauſe of the diſeaſe.

The degree of uneaſineſs which muſt neceſſarily reſult from the hairs perpetually preſſing upon the cornea and white of the eye, may be eaſily calculated even by thoſe who are little acquainted with ſurgery. To aggravate this evil ſtill more, it very frequently happens, that

* Bell's Syſtem of Surgery, vol. iii. p. 276.

the

the hairs bent inwards acquire a much greater length and thickneſs than thoſe which retain their natural poſition. And although the diſeaſe be confined to one eye, yet from conſent, both are uſually affected, and the ſound eye cannot be moved without occaſioning pain in that which is ſubjected to the irritation and friction of the inflected hairs. In general it may be ſaid that both the eyes in perſons affected with this diſeaſe are very irritable and impatient of the light. As the patient, in caſes of incomplete trichiaſis, retains ſome little power of opening the eye-lids for the purpoſe of ſeeing, and that moſt frequently towards the internal angle of the eye, the head and neck are frequently inclined in an awkward manner, producing in children, at length, a diſtortion of the neck and ſhoulders, which is with difficulty corrected, even after the trichiaſis is cured. Children beſides, impatient of the irritation which the inflected cilia produce, are inceſſantly rubbing the eye-lids, which contributes in no ſmall degree to increaſe the evils conſequent on the trichiaſis; ſuch are the *varicoſe chronic ophthalmia*, the *nebula*, and the *ulceration of the cornea*.

The cure of the ſecond ſpecies of this diſeaſe, or that which is commonly met with in practice, and which conſiſts in a morbid inclination of the tarſus, and conſequently of the cilia towards the ball of the eye, whether in conſequence of a cicatrix and contraction of the in-

ternal membrane of the palpebra in the proximity of the tarſus, from ulceration of the internal margin of the edge of the eye-lid, or in conſequence of a relaxation of the integuments, a ſoftening of the tarſal cartilage, or from all theſe cauſes combined; is effected by artificially everting the tarſus, and re-eſtabliſhing it firmly in its natural poſition, together with the cilia, which were irritating the ball of the eye. This indication is completely anſwered by the exciſio of a portion of the ſkin cloſe to the edge of the eye-lid, of ſuch a breadth and extent that when the cicatrix is formed, the tarſus and margin of the eye-lid may be turned outwards, and ſufficiently ſeparated from the eye-ball, and may find a point of ſupport in the cicatrix of the integuments ſufficiently firm to retain them in their natural poſition and direction. After ſo many uſeleſs attempts, I do not believe that there are any among modern ſurgeons, who, with a view to the radical cure of this diſeaſe, place any confidence of ſucceſs, either in the mere evulſion of the morbidly inflected hairs, in bending them outwards, and retaining them by means of adheſive plaſters, or in plucking them out and deſtroying their roots with cauſtic or the actual cautery; much leſs in extirpating the edge of the eye-lid along with the hairs, or dividing the orbicularis muſcle on the internal ſurface of the eye-lid, under the ſuppoſition that the diſeaſe is ſometimes produced by a ſpaſmodic contrac-

tion

tion of it. All theſe hypothetical methods have been rejected from practice, either as inſufficient, or dangerous, and rather calculated to aggravate than cure the diſeaſe, or to occaſion affections of the eye-lids, no leſs ſerious than the trichiaſis itſelf.*

The moſt efficacious method for the complete cure of this diſeaſe, which has been hitherto employed, not excluding that recommended by Kokler,† and known as far back as the time of Rhaſes, conſiſts, as I have already ſtated, in the exciſion of a certain portion of the ſkin of the affected eye-lid, cloſe to the tarſus; an operation which, when reduced to the ſimplicity which I ſhall propoſe, by excluding from it not only the apparatus of inſtruments formerly in uſe, but the employment of the bloody ſuture, is eaſily executed by the ſurgeon, attended with little inconvenience to the patient, and is invariably followed with immediate and certain ſucceſs.

The patient being ſeated in a chair, if an adult, or, if a child, laid on a table of a conve-

* I am certain that thoſe who have propoſed to confine the application of the actual cautery to caſes in which two or three hairs only were turned inwards towards the eye-ball, have never performed it. For beſides the great difficulty, after the hair has been extracted, of introducing the heated needle preciſely into the foraminula from which the hair has been plucked, it is ſtill more difficult to find the root of the extirpated hair, which may be at ſome diſtance from the point which the ſurgeon propoſes to cauterize.

† Verſuch einer neven Heilart der trichiaſis. Leipzig, 1796.

nient height, with the head raiſed, and firmly held by an aſſiſtant placed behind, the ſurgeon ſhould turn out the hairs which irritate the eye with the point of a probe, then with the forceps, ſuch as are uſed for anatomical purpoſes, or with the point of the fore-finger and thumb, which anſwers equally well, and in many caſes even better, he ſhould raiſe a fold of the integuments of the affected eye-lid, being particularly careful that the part taken hold of correſpond exactly to the middle of the ſpace occupied by the trichiaſis; ſince, as I have already obſerved, the whole of the tarſus is ſometimes turned inwards, at other times one half of it, and occaſionally only a third part of it. The ſurgeon ſhould raiſe the fold of the integuments with his left hand, more or leſs, according to the greater or leſs degree of relaxation of the integuments of the eye-lid, and inverſion of the tarſus, and for this evident reaſon, that the extent of the inciſion is always proportionate to the quantity of ſkin raiſed. If the patient be an adult, when the fold of the ſkin has been raiſed to a certain extent, he ſhould be deſired to open the eye, and if in this ſtate the tarſus and cilia reſume their natural ſituation, the fold of the integuments will be ſufficiently elevated for the purpoſe. As children very ſeldom ſubmit to ſuch an experiment, we are under the neceſſity of doing it by gueſs. The forceps of Bartiſch of Verduin, and

thoſe improved by Rau, which were formerly in uſe, have the inconvenience of raiſing the integuments of the eye-lid equally from one end to the other, and therefore of occaſioning too much ſkin to be removed towards the angles of the eye, and not a ſufficient quantity in the middle of it. On the contrary by uſing the diſſecting forceps and raiſing the ſkin preciſely in the centre of the whole extent of the trichiaſis, it neceſſarily follows that the inciſion made in the integuments forms an oval, the broadeſt part of which is exactly in the middle, or nearly ſo, of the eye-lid, the narroweſt towards the angles or commiſſures of it. This contributes very materially to make the cicatrix correſpond to the natural fold of the eye-lid, and prevents a diſeaſe contrary to that which it is intended to remedy from taking place in the angles of the eye-lid, namely, an everſion of the commiſſures of the palpebræ.

Beſides this caution relative to the ſituation and figure of the fold of the integuments to be removed, particular attention ſhould be paid, that the diviſion of the ſkin be made ſufficiently near the inverted tarſus. Without attention to this circumſtance, the ſurgeon may be diſappointed after the healing of the wound to find the eye-lid ſhortened upon the whole from the eye-brow to the place of exciſion, but not in an equal proportion in the ſpace between the edge

of

of the eye-lid and the cicatrix of the integuments; conſequently, the tarſus will remain folded inwards as before, or not ſufficiently everted to prevent the hairs from coming in contact with the eye; which inconvenience would ſubject the patient to a ſecond exciſion of the integuments of the eye-lid lower than the firſt.

Matters being thus arranged, the ſurgeon holding the fold of the integuments with his left hand, by means of the forceps, ſhould carefully include it in the crooked (probe) ſciſſars * well ſharpened, and being certain that one of the blades of the ſciſſars is applied cloſe upon the external margin of the tarſus, ſhould remove it at one ſtroke. If both the eye-lids, or both eyes be affected, the operation ſhould be repeated upon each ſeverally, without delay, with ſuch precautions and in ſuch proportion as the extent of the diſeaſe, and the degree of inverſion of the tarſus of each eye-lid may require. Afterwards, laying aſide the method employed by the greater part of ſurgeons, of uniting the wound by ſutures, it will be ſufficient to keep the ſupercilium depreſſed, if the operation have been performed upon the upper eye-lid, or if upon the lower, to ſupport it upon the inferior arch of the orbit by preſſing it from be-

* Plate III. fig. 2.

low

low upwards, to prevent the lips of the wound from ſeparating; which ſhould then be placed in perfect contact by means of ſtrips of adheſive plaſter, which ought to extend from the ſuperior arch of the orbit to the zygoma; and for the greater ſecurity they ſhould be maintained in that poſition by means of two ſmall compreſſes, one applied upon the eye-brow the other upon the zygoma, and covered with the *uniting* * bandage, which ſhould be applied in the direction of the *monoculus*.

It appears to me that ſurgeons have been induced to employ the ſuture, from obſerving that after the exciſion of the fold of ſkin, of the upper eye-lid for inſtance, the integuments were drawn ſo much upwards towards the ſupercilium, and downwards towards the tarſus, that the eye-lid might be ſaid at the moment to be denuded, and entirely deprived of ſkin. But this is merely ſo in appearance, for when the ſupercilium is depreſſed by means of ſmall compreſſes and the *uniting* bandage, the eye-lid is immediately covered with ſkin as before, and the lips of the wound are eaſily brought into perfect contact without the neceſſity of employing ſutures. Gendron † is one of the few, who in theſe caſes prefer the ſtrips of adheſive plaſter to the uſe of ſutures, having very fre-

* See Heiſter's Surgery, Part III. ſect. 1. chap. ii. p. 355.

† Traité des maladies des yeux, tom. i. p. 243.

quently

quently obſerved that the uſe of the latter is followed by a violent tenſion and inflammation, which cauſe a laceration of the parts. Of the juſtneſs of his opinion, as well as the ſimplicity and the ſpeedineſs of the operation I am ſatisfied from my own experience.

On removing the firſt dreſſings, the third day after the operation, the ſurgeon will find that the patient opens his eye without difficulty, and that the inflected tarſus and cilia have recovered their natural poſition and direction. In the partial or incomplete trichiaſis, or that which occupies only one half or a third of the length of the tarſus in perſons whoſe ſkins are very diſtenſile, I have frequently had the ſatisfaction to find, on removing the firſt dreſſings, the wound perfectly united.

When, however, the wound has only united in part, and the remainder has ſuppurated and formed granulations, it ſhould be covered with a ſmall ſtrip of lint ſpread with the ung. ceruſſæ. If there be fungus it ſhould be occaſionally touched with the argentum nitratum until the cicatrix is perfectly formed. In general the cure does not exceed the fourteenth day from the operation.

Hitherto I have ſpoken of the radical cure of the ſecond and moſt frequent ſpecies of trichiaſis. As to the firſt form of the diſeaſe, which fortunately is very rare, in which the hairs are

pointed

pointed againſt the ball of the eye, without the tarſus having altered its natural poſition, the treatment, if there be any, is exceedingly difficult, ſince it is demonſtrated that neither the plucking out, nor burning the roots of the hairs is adequate to the complete cure of the diſeaſe; and that the everſion of the tarſus, contrary to its natural direction, would equally ſubject the patient to the riſk of a perpetual weeping of the eye, and chronic tumefaction of the internal membrane of the eye-lid. Upon this point the art of ſurgery is yet imperfect, and the ſubject merits a more diligent attention, than practitioners have hitherto beſtowed on it. In the caſe hinted at in the beginning of the chapter which came under my own obſervation, there only appeared two or three hairs directed againſt the eye-ball. Having however bent outwards a ſmall part of the tarſus, oppoſite the ſeat of the diſeaſe, I ſaw indeed that I ſhould not ſucceed in replacing the two or three morbidly inclined hairs in their natural direction; but that I ſhould be able to ſeparate them ſufficiently from the cornea, and prevent their preſſing upon it without the tarſus being ſo much turned out as to allow the tears to fall upon the cheek. And as in this caſe * the ſkin near the tarſus was very

* Caſe XIX.

tenſe,

tenſe, I departed from the preceding rule, by making an external inciſion with the back of the lancet near the tarſus three lines in extent, and removing a piece of ſkin of the ſame length, and rather more than a line in breadth. When the cicatrix was complete, the operation was as ſucceſsful as the nature of the diſeaſe admitted of, but not ſuch that this method of treatment could be ſaid to be perfect and exempt from inconvenience in caſes of greater magnitude than the one here adduced.*

The trichiaſis being cured ſomething remains to be done, in order to correct the diſeaſe from which it has originated, as well as to repair the injury which the ball of the eye has ſuſtained from the friction and irritation of the inflected

* Dr. Crampton propoſes the following operation which he ſtates to have performed in one inſtance, with a ſucceſs which anſwered his warmeſt expectations. "Let the eye-lid be well turned outwards by an aſſiſtant; let the operator then with a lancet divide the broad margin of the tarſus completely through, by two perpendicular inciſions, one on each ſide of the inverted hair or hairs: let him then, by a tranſverſe ſection of the conjunctiva of the eye-lid, unite the extremities of the perpendicular inciſions. The portion of cartilage contained within the inciſions, can then, if inverted, with eaſe be reſtored to its original ſituation, and retained there by ſmall ſtrips of adheſive plaſter, or (perhaps what is better) by a ſuſpenſorium palpebræ, adapted to the length of the portion of the tarſus which it is intended to ſuſtain, ſhould one or two hairs be diſplaced without inverſion of the tarſus." Eſſay on the Entropeon, p. 55.

hairs.

hairs. The indications in general are to ſtrengthen the veſſels of the conjunctiva, to diminiſh the enlargement of the ciliary glands, and to remove the opacity of the cornea. Of theſe we ſhall treat diſtinctly in the chapters on *ophthalmia* and the *nebula* of the cornea.

The celebrated Albinus * is the only perſon, as far as I know, who has noticed the trichiaſis of the caruncula lachrymalis. For the greater advantage of the ſtudent I have thought proper to ſubjoin the hiſtory which he has delivered. *In ſubtilibus illis pilis, quos Morgagnus in caruncula lachrymali animadvertit, trichiaſis ſpeciem vidi. Unus eorum increverat præter naturam, craſſior longiorque atque ita ſe incurvans, ut globum oculi extrema parte attingeret. Conſecuta eſt oculi inflammatio dira, cruciatu tetro, et quod cauſa non intelligebatur, pertinax. Adhibita fuerant quæcunque ſuggerere ars potuerat, et empiria: collyria, epiſpaſtica, purgantia, ſanguinis miſſiones, fonticuli, diæta. Quum nihil proficeretur, forte itum adme. In cauſam ſi invenire poſſem, inquirens, ecce pilus. Quo evulſo, ſubſedit malum.* The author leaves us, however, to wiſh for an important elucidation; whether the hair which was plucked from the caruncle was afterwards reproduced or not, and if it were in what direction it grew.

* Acad. annot. lib. iii. cap. 8.

## Case XV.

Tereſa Ballerini, of Trumello, a country woman, 35 years of age, was afflicted with an obſtinate chronic ophthalmia during five years, in conſequence of which her ſight was nearly deſtroyed. She was unable to raiſe the upper eye-lid of either eye, on account of their extreme relaxed and corrugated ſtate, and the tarſus and cilia of both eyes were ſeen folded inwards, and irritating the eye. A ſmall degree of light was admitted at the internal angle of the eye, as the tarſus was leſs depreſſed and folded inwards at this part than any other. The cornea of the right eye appeared profoundly opake, that of the left was only a little cloudy. The hairs had been ſeveral times plucked out by a ſurgeon in the country, one by one, but without advantage.

The patient being received into the practical ſchool, and ſeated in a chair, I made a fold of the integuments of the upper eye-lid of the left ſide, with my fingers, near the margin, taking care to raiſe it more towards the external than the internal angle of the eye-lid; and finding it ſufficient to draw the tarſus and cilia outwards, I removed it with one ſtroke of the crooked ſciſſars. I immediately brought the lips of the wound together, and retained them in contact by ſtrips of adheſive plaſter, and more eſpecially by the application

application of a compreſs upon the ſupercilium and the *uniting* bandage in the direction of the *monoculus*. I immediately repeated the ſame operation on the upper eye-lid of the right ſide.

On removing the firſt dreſſings, three days after the operation, the woman was able to open her eyes, and I found that the tarſi and cilia of both eye-lids had recovered their natural poſition.

A ſmall wound remained at the divided part on both ſides, the greateſt breadth of which did not exceed two lines. By the application of the unguent. ceruſſæ, ſpread upon a ſtrip of lint, and the occaſional uſe of the argentum nitratum it healed in the courſe of twelve days. The effects of the chronic inflammation and the ſlight opacity of the left eye were removed in the courſe of a month by the uſe of the vitriolic collyrium, and the ophthalmic ointment of Janin; as to the right the *leucoma* was ſo denſe as to be incurable.

## Case XVI.

Signor Count N. . . . of Pavia, had been ſubject from his infancy to a diſcharge from the eyes; at the age of ten he was unable to raiſe the upper eye-lid of the left eye, and in a very ſlight degree that of the right, or only for two or three lines towards the external angle, on which account he was obliged, for the purpoſe

of ſeeing, to hold his neck ſidewiſe and look obliquely with the right eye. The tarſus and cilia of the ſuperior palpebra of the left eye were folded inwards, and preſſed almoſt entirely upon the ball of the eye, and particularly upon the cornea which they violently irritated: the cartilaginous border and the cilia of the right ſuperior eye-lid, near the external angle, remained in their ſituation, while the reſt of the hairs of the ſame row ſtimulated the cornea. On the left ſide the cornea was very dark, and marked here and there with ſmall denſe ſpots: that of the right ſide was merely cloudy.

The cilia were extirpated from this child five different times, and their roots touched with cauſtic; but, as they always grew again more pointed and briſtly than before, it was propoſed to remove along with them the edges of the affected eye-lids. Such were the circumſtances of the caſe when he came under my care.

As the boy was very unmanageable, principally becauſe he had been frequently tormented to no purpoſe, I was obliged to confine him more ſecurely, by placing him upon a ſmall bed where he could be eaſily held. I raiſed the ſkin of the ſuperior palpebra of the right eye near the tarſus, by means of the forceps, making the moſt elevated centre or point of the wound towards the internal angle, for the reaſons before aſſigned, and with the crooked

ſciſſars

ſciſſars divided it at one ſtroke; I then repeated the ſame operation upon the upper eye-lid of the left ſide, making the moſt elevated point of the wound on this ſide, preciſely in the middle of the eye-lid. The retraction of the integuments and the denudation of the eye-lids had a frightful appearance to the byſtanders. But by depreſſing the ſupercilium, and applying ſtrips of adheſive plaſter, with the compreſſes and *uniting* bandage upon each ſide, the integuments were made to cover the eye-lids, and the lips of the two wounds were held in perfect contact. The boy took ʒ ounces of emulſion with 9 drops of the tincture of opium, he ſlept a little afterwards, and was ſufficiently quiet during the remainder of the treatment.

The dreſſings were removed on the fifth day, and the boy was able to open his eyes ſufficiently well: the tarſi and cilia of both eye-lids were now turned outwards, and ſo far ſeparated from the ball of the eye as not to come in contact with it, though they could not yet be ſaid to be in their proper and natural poſition. This was occaſioned by the wounds having ſuppurated more than uſual, and having a tendency to become fungous which prevented the perfect approximation of the divided edges of the ſkin. By repreſſing the fungus with the argentum nitratum, and covering it with the unguent. ceruſſæ, the ſores healed in the courſe of two weeks; and

in proportion as they contracted, the tarſus and cilia of each eye-lid were ſeparated at a greater diſtance from the eye-ball, and ultimately returned to their natural poſition.

By means of Janin's ophthalmic ointment, applied between the eye-lids morning and evening for forty days, and the vitriolic collyrium inſtilled into the eye ſeveral times in the courſe of the day, the varicoſe veſſels of the conjunctiva recovered their tone. The ſlight opacity of the cornea of the right eye was entirely diſſipated; that of the left only in part, as there were many opake ſpots irremoveable.

## Case XVII.

I undertook the treatment of an old woman who for ſeveral years had been regarded by her friends as completely blind, in conſequence of an extraordinary relaxation of the upper eye-lid of both eyes, produced by repeated attacks of ophthalmia, and an inverſion of the edges of the eye-lids. The palpebræ being forcibly ſeparated, the tarſi and cilia of both the upper eye-lids were ſeen preſſing upon the eye-ball, and the cornea of each eye had in a great meaſure loſt its natural tranſparency. In making this examination I did not perceive that on the left ſide there was alſo an inverſion of a ſmall part of the tarſus and hairs of the lower eye-lid.

So

So great was the relaxation of the integuments of the two upper eye-lids, that inſtead of the forceps I uſed the thumb and finger of my left hand, with which I raiſed a conſiderable fold of the ſkin near the margin of the right ſuperior eye-lid, which I divided with the ſciſſars, removing a portion of the integuments of an oval figure, the tranſverſe diameter of which correſponded preciſely to the middle of the palpebra, the longitudinal to its two angles. The operation was repeated in the ſame manner upon the left ſuperior eye-lid. I then applied upon each the uſual dreſſings, conſiſting of a few ſtrips of adheſive plaſter, compreſſes upon the ſupercilium and zygoma, and the *uniting* bandage.

At the end of three days I removed the dreſſings for the firſt time, and found the whole in a good ſtate, as the woman was able to open her eyes without difficulty, the tarſus and cilia of each eye-lid had returned to their ſituation, and the wound, though not yet cicatrized, had a healthy appearance: I obſerved, however, that in the act of opening and ſhutting the left eye a few tears eſcaped from it, and that the patient complained of a little pain in it, which was not the caſe in the right eye. I preſently diſcovered that towards the external angle of the lower eye-lid of the left ſide there was a ſmall number of hairs, which, together with the tarſus, to the extent of two lines, was folded inwards

and wounded the eye. Upon everting this part of the lower eye-lid, ſome white indurated ſpots were diſtinctly obſerved, oppoſite the inverted portion of the tarſus, which indicated the previous exiſtence of ſome ſmall corroding ulcers, the cicatrices of which had drawn inwards this ſmall portion of the tarſus, together with its correſponding cilia.

I immediately divided the ſkin of the lower eye-lid with the back of a lancet, to the extent of nearly four lines along the inverted tarſus, and having inſinuated through this opening the point of a fine pair of forceps,* I elevated and removed a ſmall portion of the ſkin of an oval figure, and of a ſize proportioned to the degree of depreſſion and inverſion of the tarſus and hairs, and covered the wound with a ſtrip of ſimple diachylon. The wound ſuppurated, and it was neceſſary to touch it frequently with the argentum nitratum. As ſoon as the wound was healed the portion of the edge of the eye-lid folded inwards recovered its natural poſition. The great age of the patient, who was near 60, and the tenacity of the humour collected in the ſubſtance of both the corneæ, notwithſtanding the continual uſe of the ophthalmic ointment, and the vitriolic collyrium for a month, did not admit of that membrane being reſtored, but in a

* Plate III. fig. 8.

ſmall

ſmall degree, to its former tranſparency. The patient however towards the end of the treatment was able to diſtinguiſh the figures and colours of bodies, and left the hoſpital very well ſatisfied in having been freed from this painful diſeaſe.

## Case XVIII.

The daughter of Signor Giovanni R... of Roveſcalla, a child nine years of age, of a ſcrofulous habit, who had contracted the *ſcabies* while at the breaſt, was ſeized in the ſeventh year of her age with a chronic inflammation of the palpebræ of both eyes, eſpecially of the right, attended with exulceration of the internal margin of the tarſus, and of the boundary of the ſclerotic coat with the cornea in ſome points of it. In the courſe of two years the ophthalmia, eſpecially of the right eye, reſiſting the uſe of a variety of remedies, both internal and external, which had been preſcribed for it, the child gradually loſt the power of opening this eye, except a ſmall part of it towards the external angle. The tarſi on both ſides were indurated, incruſted, and gummed, but thoſe of the right eye were alſo drawn inwards, together with the cilia both in the upper and lower eye-lid; the inverſion in the lower however was confined to a ſmall part towards its external angle. The irritation which

the cilia excited in the right eye was ſo troubleſome that the child was inceſſantly carrying its hand to it.

The child was laid upon a table with her head a little raiſed, and firmly held by aſſiſtants, particularly by Signor Gianni, a ſkilful ſurgeon of this hoſpital. I formed a fold of the integuments of the upper eye-lid of the right eye with my fingers, in ſuch a manner as to elevate it more towards the external than the internal angle of the eye, and with a pair of very ſharp ſciſſars removed a convenient portion of it, of an oval figure, cloſe to the inverted portion of the tarſus, and in a direction parallel to it. A ſimilar diviſion was then made of the integuments of the lower eye-lid, but of a leſs extent, as the inverſion of the tarſus and hairs was not ſo conſiderable in this as in the upper eye-lid.

The wound was wiped dry and covered in the uſual manner with ſtrips of adheſive plaſter, extending from one arch of the orbit to the other; compreſſes were applied upon the ſupercilium and zygoma, and the whole ſecured by the *uniting* bandage applied in the direction of the *monoculus*.

Although immediately after the operation it was impoſſible to keep the child in bed, in order that ſhe might take ſome reſt, for which purpoſe ſome drops of laudanum had been given to her, yet no bad ſymptom occurred. When the

the firſt dreſſings were removed on the third day, to the great aſtoniſhment of thoſe around, the child opened the right eye without difficulty: the tarſus and cilia had regained their natural ſituation, and the wound in the upper as well as the lower eye-lid was perfectly healed. The great length to which the hairs that had preſſed upon the eye-ball were grown, contraſted with thoſe ſituated towards the internal angle which had preſerved their natural direction, was very remarkable.

To complete the cure, it was only neceſſary to cover the two cicatrices with a ſtrip of linen ſpread with the unguent. ceruſſæ, to ſtrengthen the varicoſe veſſels of the conjunctiva, and to remove the opacity of the cornea of the right eye, which was obtained as far as poſſible, conſidering the great and long continued thickening which had taken place, in the ſpace of forty days, by employing at firſt the Thebaïc tincture of the *London Pharmacopœia*, afterwards the ophthalmic ointment, and at intervals during the day the vitriolic collyrium.

## Case XIX.

Lorenzo Crivelli, of Montalto, a ſtrong peaſant, 26 years of age, who had never been ſubject to diſcharges of the eyes, in the beginning of May 1798, aroſe from bed with a pruritus of the

the right eye, ſo intolerable that he could not refrain a moment from rubbing it. This inconvenience, accompanied with heat and redneſs of the whole eye, increaſed in a few days to ſuch a degree, that fearing he ſhould loſe the ſight of the eye, he came to the hoſpital.

About the middle of the lower eye-lid of the right ſide, to the extent of two lines, there was evidently an irregularity of the hairs, which grew in different directions. Three of theſe aroſe diſtinctly from the internal ſurface of the tarſus, were directed obliquely towards the ball of the eye, and preſſed partly upon the lower portion of the cornea, and partly upon the conjunctiva near to it; which had an impreſſion on it at that part, and was tinged with a ſpot of blood. This had taken place without the tarſus, either in that or any other part of it, having changed its natural ſituation.

Being ſufficiently aware of the inutility of plucking out the hairs in this diſeaſe, as well as the inefficacy of the means hitherto propoſed for confining them outwards by adheſive plaſter, fine ligatures, and other ſimilar meaſures; and obſerving in this caſe that a moderate everſion of the ſmall portion of the tarſus to which the diſeaſe was confined, would be ſufficient to ſeparate the hairs from the eye-ball without producing any remarkable deformity; I determined on this occaſion, as the only means left to me,

to remove a ſmall portion of the integuments of the lower eye-lid near the inverted hairs.

The patient being ſeated with his head bent backwards, and the eye-lid firmly fixed by an aſſiſtant preſſing upon the angles, I made an inciſion in the integuments with the back of a lancet, four lines in extent, immediately below the edge of the eye-lid, and cloſe to the tarſus; then having raiſed the divided ſkin with the forceps, I removed a ſmall portion of an oval figure exactly of the ſame length, and about two lines and a half in its greateſt breadth: The wound was covered with a ſtrip of linen ſpread with digeſtive ointment, a compreſs was placed upon the zygoma, and the *uniting* bandage applied in the direction of the *monoculus*.

On removing the dreſſing two days afterwards I found the lips of the wound conſiderably approximated, and the edge of the eye-lid proportionately drawn outwards, with the three hairs correſponding to it which had been inverted, by which the patient found himſelf gradually relieved from this inconvenience. One hair only, the longeſt of the three, preſſed yet ſlightly upon the cornea; I ſay ſlightly, becauſe the patient did not complain of it, and the mark of the conjunctiva was now almoſt entirely diſſipated. The wound was touched on that day and the three following with the argentum nitratum, in order to deſtroy a little more of the ſubſtance of the eye-

lid,

lid, and to cauſe a ſtill greater everſion of its edge oppoſite this ſmall point of the *trichiaſis*. Five days afterwards the wound was completely healed. The long hair which alone remained out of its natural direction no longer touched the cornea, but laid in the longitudinal direction of the internal edge of the lower eye-lid, without occaſioning any uneaſineſs or weeping of the eye. I therefore believed that I had accompliſhed all that the caſe ſeemed to require, and permitted the man to return home.*

* In an eſſay on the Entropeon lately publiſhed by Dr. Crampton of Dublin, the author endeavours to ſhow, from a ſeries of facts, that this diſeaſe, but particularly the inverſion of the upper eye-lid, is owing to a thickened and contracted ſtate of the conjunctiva. As this is a ſubject upon which obſervation alone muſt decide, I have thought it proper to ſubjoin his account of the nature of the diſeaſe, and the operation which he propoſes for its removal. "When the eye is voluntarily opened (ſays this gentleman) the upper eye-lid is not drawn vertically upwards, but backwards, deſcribing a line parallel to the anterior and ſuperior ſurface of the eye, over which it moves. When the eye is completely open, the eye-lid is lodged in the ſpace contained between the roof of the orbit and the ſuperior ſurface of the eye. But ſhould this ſpace be filled up by the thickened or contracted conjunctiva, the levator palpebræ cannot execute its functions. Every acceſſion of inflammation contracts the conjunctiva; the conjunctiva terminates upon the margin of the eye-lids; which deriving no ſupport from without, and being conſtantly acted upon from within, readily yield and become permanently inverted." In order to remove this ſtricture formed by the conjunctiva, and to reſtore the parts to their natural poſition, Dr.

Dr. Crampton recommends that the extremities of the tarſi ſhould be divided with a ſharp-pointed biſtoury introduced between the eye-ball and palpebræ, and a tranſverſe inciſion made in the internal membrane of the eye-lid, from one angle of the tarſus to the other, and that the eye-lid thus liberated ſhould be ſupported in its natural poſition by means of a ſuſpenſorium palpebræ, till by recovering its original healthy ſtate it is enabled to perform its functions.

## CHAP. V.

### OF THE RELAXATION OF THE UPPER EYE-LID.

THE operation detailed in the preceding chapter, is alſo employed for the cure of the relaxation of the upper eye-lid, when it is ſimple or unaccompanied with a morbid inverſion of the cilia towards the eye-ball. This diſeaſe does not injure the organ of viſion, except in as much as it prevents thoſe who are affected with it from being able to ſee, without raiſing the upper eye-lid with the finger.

The exceſſive elongation of the upper eye-lid is ſometimes, though rarely, a congenital diſeaſe: moſt frequently it ariſes from a morbid thickening of the parts, in conſequence of obſtinate chronic ophthalmia, in perſons of a lax and unhealthy fibre, or from the long continued uſe of emollient and relaxing applications. It is ſometimes occaſioned by an atony of the elevator muſcle, peculiar to the upper eye-lid, either ſimple or accompanied with a paralyſis of the optic nerve, as uſually happens in conſequence of violent blows upon the eye-ball, when the eye-lids are cloſed, with or without laceration of

of the upper eye-lid and extenſive ecchymoſis of the conjunctiva. It ſometimes takes place during ſhort intervals, in conſequence of a ſpaſm of the orbicular muſcle of the eye-lids.

The congenital elongation of the upper eye-lid, and the relaxation which takes place from a morbid thickening of the parts, in conſequence of the too long continued uſe of emollient applications, or of the eye being kept too long cloſed and compreſſed by bandages, is a diſeaſe eaſily characterized by the combination of circumſtances which have preceded it. If the atony or complete paralyſis of the elevator muſcle of the eye-lid have had any ſhare in producing the relaxation of it, it may be known by making a tranſverſe fold of the integuments with the fingers or forceps, near the ſuperior arch of the orbit. For if this muſcle have not loſt its power of contraction, when it is relieved as it were from the ſuperincumbent weight of the integuments, the patient is able to raiſe the eye-lid and open his eye ſufficiently, if otherwiſe the eye remains half cloſed. That depreſſion of the eye-lid, with inability of raiſing it, which recurs at ſhort intervals, which comes on and diſappears ſuddenly, and which depends on a temporary ſpaſm of the *orbicularis palpebrarum*, is not properly a diſeaſe, but a ſymptom of ſome other general ſpaſmodic affection, as of hypochondriaſis, hyſteria, chloroſis, or of diſeaſes of the ſtomach, occaſioned by indigeſtion

geſtion or the preſence of worms: the cauſes of which affections it is not difficult to aſcertain.

Among the cauſes of this imperfection writers on ſurgery have alſo reckoned tranſverſe wounds of the upper eye-lid or correſponding ſupercilium; of which however they have not treated with ſufficient perſpicuity. For if they intend to ſpeak of thoſe tranſverſe wounds of the upper eye-lid or ſupercilium, which deſtroy or violently contuſe the elevator muſcle, or which greatly injure the ſupraorbital nerve, the relaxation of the upper eye-lid may certainly be the conſequence, but not the only one, as they are very frequently ſucceeded by a much more ſerious accident, the total loſs of ſight. If they mean to include every other ſpecies of tranſverſe wound of the upper eye-lid or ſupercilium, it is evident that if this be unattended with loſs of ſubſtance and heal by the firſt intention, it cannot produce a relaxation of the eye-lid, and if it be accompanied with a loſs of ſubſtance of the integuments or ſubjacent parts, and proceed to ſuppuration, inſtead of occaſioning a relaxation, when healed, it would rather produce a contrary diſeaſe, the ſhortening of the eye-lid.

When the diſeaſe is purely local and recent, in perſons not advanced in age, or affected with hemiphlegia, or paralyſis of the muſcles of the face, and when it is derived from a morbid thickening of the parts which before were ſoft

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and flaccid: ſome advantage may be expected from the uſe of local corroborant remedies, of which cold water, with a ſmall quantity of ſpirit of wine added to it, frictions upon the relaxed eye-lid with the anodyne liquor, or tincture of cantharides, and the application of the ſoap liniment with camphor, merit a preference.

The relaxation which is ſymptomatic of hypochondriaſis, hyſteria, and of morbid ſtimuli in the ſtomach, is cured by the adminiſtration of internal antiſpaſmodic and antihyſteric remedies, by emetics and anthelminthics.

The congenital relaxation of the upper eye-lid, the inveterate humoral, and that which is accompanied with atony of the levator muſcle, provided in this laſt caſe the immediate organ of viſion remain ſound, can only be cured by means of an operation. It is true, that in the caſe of atony or debility of the elevator muſcle, the eye can never be ſo completely opened as the ſound one, even after the operation; the patient, however, will be able to look at objects without being under the neceſſity of raiſing the eye-lid with his finger.

This diſeaſe is cured, as I have ſaid, in the ſame manner as the trichiaſis: by raiſing the ſuperabundant portion of the integuments of the eye-lid between the finger and thumb, and removing it by means of the ſciſſars; obſerving however not to take away a greater or leſs quantity

of ſkin than is neceſſary, that the eye-lid may yield to the action of the elevator muſcle, and by obeying it, may conveniently uncover the eye-ball. In the moſt common caſe of trichiaſis, or that which is derived from a relaxation of the eye-lid, together with a morbid inverſion of the tarſus and hairs, it is of the greateſt importance, as I have ſtated, for the complete ſucceſs of the operation, to make the fold of the integuments as near as poſſible to the inflected tarſus, that the edge of the palpebra may be gradually drawn outwards; but in the caſe of ſimple relaxation of the upper eye-lid, of which I am now treating, without any morbid inclination of the edge of the palpebra or hairs, as there is no indication to be fulfilled but that of ſhortening the integuments of the eye-lid, it is more advantageous to make the fold and exciſion in the proximity and direction of the ſuperior arch of the orbit, than near the tarſus.

The exceſs of the integuments of the relaxed eye-lid, compared with the ſound one, is eaſily aſcertained, by directing the patient to look ſtedfaſtly at an object in a line horizontal to the height of his eye; for the ſound and open eye being held firmly in that poſition, will ſhow clearly how much leſs the relaxed eye-lid is raiſed than the ſound one. The ſurgeon, therefore, having made a tranſverſe fold of the integuments at the upper part of the relaxed eye-lid,

in

in the vicinity and direction of the ſuperior arch of the orbit, proportionate to the diſparity of its length; and the fold of ſkin being firmly held by means of the forceps, he ſhould direct the patient to open his eyes. If this be performed as well on the affected as the ſound ſide, it will be a certain indication, as I have ſaid, of the integrity and aptitude of the elevator muſcle, to contract and exert its power upon the relaxed eye-lid; and if at the ſame time both eye-lids are raiſed to the ſame height, it will be alſo a ſufficient proof of the exact quantity of integuments comprehended in the tranſverſe fold to be removed; in the contrary caſe the fold muſt be increaſed or diminiſhed accordingly. Having done this, the ſurgeon ſhould remove this fold of the integuments with one ſtroke of the ſciſſars, which being more elevated in the middle of the upper part of the eye-lid, than at its extremities will leave a wound of the figure of a myrtle leaf. The lips of the wound ſhould then be placed in contact, and retained by means of ſtrips of adheſive plaſter, but eſpecially by applying a compreſs upon the ſupercilium, and another upon the inferior margin of the orbit, and over theſe the *uniting* bandage in the direction of the *monoculus*. The cure is generally completed in a few days, provided, as in the caſe of trichiaſis, the compreſſes and *uniting* bandage

are exactly applied, and the latter has a proper degree of tightneſs given to it.

The caſes which I have related in the preceding chapter on trichiaſis, render it the leſs neceſſary for me to adduce any inſtances in ſupport of this operation, although I could have introduced ſeveral. To the young ſurgeon, however, it will be uſeful to read upon this ſubject the caſe publiſhed by Morand, in the ſecond volume of his *Opuſcules de Chirurgie*.

## CHAP. VI.

### OF THE EVERSION OF THE EYE-LIDS.

As the exceſſive relaxation of the integuments of the palpebræ, and the morbid abbreviation of their internal membrane near the edge of the eye-lid, in conſequence of ſmall corroding ulcers, and the cicatrices conſequent on them, occaſion a morbid inclination of the tarſus and cilia towards the eye-ball; ſo, occaſionally, the too great relaxation and tumefaction of their internal membrane, or the too great contraction and ſhortening of the ſkin of the eye-lids, or of the integuments of the ſurrounding parts, produce a diſeaſe contrary to that of trichiaſis; the turning outwards or everſion of the eye-lids, termed *ectropion*.

With regard to the cauſes, therefore, there are two diſtinct ſpecies of this diſeaſe; the one ariſing from a preternatural tumefaction of the palpebra, which not only ſeparates its edge from the eye-ball, but alſo preſſes upon it in ſuch a degree as ultimately to evert it; the other produced by a ſhortening of the ſkin which covers

the eye-lid, or that of the neighbouring parts, by which the ciliary edge is, in the firſt inſtance, ſeparated from the ball of the eye, and afterwards gradually turned outwards, together with the whole of the eye-lid.

The morbid tumefaction of the internal membrane of the palpebræ, which occaſions the firſt ſpecies of everſion, not conſidering at preſent that of a ſimilar kind, which takes place in old age, is generally derived from a congenital laxity of the conjunctiva, increaſed by attacks of obſtinate chronic ophthalmia, eſpecially of the ſcrofulous kind, in perſons of a weak and unhealthy fibre; or is the conſequence of a variolous metaſtaſis to the eyes, accompanied with a relaxation of the veſſels of the conjunctiva; of the cruſta lactea, impetigo, or other eruptive diſeaſes of the ſkin imprudently repelled.

While the diſeaſe occupies the lower eye-lid only, which is moſt frequently the caſe, its internal membrane is elevated in the form of a ſemilunar fold, of a pale red colour, reſembling the fungous fleſh of wounds, interpoſed between the ball of the eye and the eye-lid, which it everts to a certain extent. But when the morbid tumefaction has extended to both the eye-lids, the diſeaſe preſents a circular appearance, in the centre of which the eye-ball lies as if imbedded, while the circumference preſſes upon, and turns out the edges of both the eye-lids, occaſioning

occaſioning conſiderable uneaſineſs and deformity. In either caſe, if the integuments of the eye-lids are preſſed upon with the point of the finger, it is evident that they readily admit of being elongated, and that the eye-lids would yield ſo as to cover the eye-ball completely, if they were not prevented by this intermediate tumefaction of their internal membrane.

Beſides the great deformity which this diſeaſe occaſions, it produces a continual diſcharge of tears upon the cheek, aridity of the ball of the eye, frequent attacks of chronic ophthalmia, intolerance of light, and in the end nebulæ and ulceration of the cornea.

The ſecond ſpecies of everſion, or that occaſioned by a ſhortening of the ſkin which covers the eye-lid or ſurrounding parts, is not unfrequently a conſequence of contractions produced by the confluent ſmall-pox in the integuments of the face near the eye-lids, or in thoſe of the eye-lids themſelves; of deep burns accidentally inflicted on the ſame parts; of the extirpation of cancerous warts or encyſted tumours of the eye-lids or circumjacent parts, where a ſufficient quantity of ſkin has not been ſaved; of the malignant carbuncle; and laſtly of lacerations of theſe parts, attended with conſiderable loſs of ſubſtance. Each of theſe cauſes is ſufficient to produce ſuch a contraction and ſhortening of the integuments of the eye-

lids. as to draw them towards either of the arches of the orbit; and conſequently to ſeparate them from the eye ball, and cauſe an everſion of their edges. This effect no ſooner takes place than it is ſucceeded by another no leſs inconvenient, the tumefaction of the internal membrane of the eye-lid, which alſo greatly contributes to complete the everſion. For the internal membrane of the eye-lid, though ſlightly everted, being inceſſantly expoſed to the contact of the air, and continually irritated by extraneous ſubſtances, in a ſhort time ſwells and is elevated in the form of a fungus; one part of which by degrees covers a portion of the eye-ball, the other preſſes the eye-lid outwards, and produces ſo conſiderable an everſion of it, that its edge is not unfrequently brought in contact with the margin of the orbit. This ſecond ſpecies of the diſeaſe is attended with the ſame unpleaſant effects as the firſt, to which it may be added, that when either form of the diſeaſe has been of long ſtanding, the fungous tumefaction of the internal membrane of the eye-lids becomes indurated, coriaceous, and almoſt callous.

Although the internal membrane of the eye-lid, in both theſe ſpecies of everſion, appears equally tumefied, yet the ſurgeon may eaſily determine to which of the two ſpecies the diſeaſe belongs. For, in the firſt form of the diſeaſe, as I have ſtated, the ſkin of the eye-lid, or ſurrounding

rounding parts, is not disfigured with ſcars, and the everted eye-lid, on being preſſed upon with the point of the finger, would riſe again without difficulty, ſo as to cover the eye completely, if this carnous ſubſtance were not interpoſed; while, in the ſecond ſpecies of everſion, beſides the evident ſcars and contractions which are ſeen upon the ſkin of the eye-lid or neighbouring parts, if an attempt be made to reſtore the eye-lid to its ſituation, it either does not yield ſo as to cover the eye-ball entirely, or it can only be reduced to a certain extent, or, from the edge of the eye-lid having contracted an adheſion to the arch of the orbit, in conſequence of a very conſiderable deſtruction of the integuments, it does not admit of being removed in any degree from its unnatural poſition.

From comparing therefore theſe two ſpecies of everſion, it muſt be evident that a perfect cure of this diſeaſe cannot be effected equally in both forms of it, and that the latter ſpecies in ſome inſtances is abſolutely incurable. For as the treatment of the firſt ſpecies of everſion, which depends only on a morbid tumefaction of the internal membrane of the palpebræ, merely conſiſts in removing that which is ſuperfluous, the art of ſurgery poſſeſſes many efficacious means perfectly adequate to the fulfilment of this indication. But in the ſecond ſpecies of the diſeaſe, in which the principal

cipal cauſe conſiſts in the loſs of a portion of the ſkin of the eye-lid or ſurrounding parts, which no artifice hitherto known can reſtore, a complete cure of the diſeaſe cannot be obtained. The ſurgeon muſt be therefore content to remedy as far as poſſible the evils attendant on it, and that in a more or leſs ſatisfactory manner, according to the greater or leſs deſtruction of the integuments, and to abandon as incurable thoſe caſes in which the edge of the eye-lid is found to be united to the arch of the orbit. *Si nimium palpebræ deeſt*, ſays Celſus,* *nulla id reſtituere curatio poteſt.* In the treatment then of the ſecond ſpecies of everſion, the degree of ſucceſs muſt be determined in every caſe by the ſurgeon's obſerving to what extent the eye-lid can be reduced by gently preſſing it towards the eye-ball with the point of the finger, both before and after the employment of ſuch means as are calculated to produce an elongation of its integuments, ſince it is to this point only that it can be reduced and maintained in its poſition permanently.

With reſpect to the treatment of the firſt ſpecies of everſion, if the diſeaſe be recent, the fungous ſtate of the internal membrane not conſiderable, and conſequently the everſion of the edge of the eye-lid ſmall, of two lines in extent

* Book VII. chap. 7.

or

or little more, and in young perſons, (for in thoſe advanced in years the eye-lids are ſo flaccid that the diſeaſe is altogether incurable,) it may be removed by deſtroying the ſuperficial fungus of the internal membrane of the eye-lid with the argentum nitratum, which ought to be executed in the following manner. The ſurgeon ſhould completely evert the affected eye-lid with his left hand, and with his right wipe it dry by means of a piece of linen cloth; he ſhould then rub the cauſtic ſtrongly upon the whole extent of the ſuperficial fungus, ſo as to produce an eſchar. In order that it may occaſion the patient as little pain as poſſible, at the moment the cauſtic is withdrawn an aſſiſtant ſhould inſtantly cover the cauterized part with a little oil, which will prevent the tears from readily diſſolving the argentum nitratum, and diffuſing it over the eye-ball. If, however, any portion of the diſſolved cauſtic ſhould occaſion uneaſineſs, it ought to be waſhed off, by frequently dropping into the eye a little new milk. This application of the cauſtic ſhould be repeated for ſeveral ſucceſſive days, until it has produced a ſufficient ulceration and deſtruction of the ſuperficial fungus of the conjunctiva, eſpecially near the tarſus; after which lotions of ſimple water, or barley water with mel roſæ, will be ſufficient to promote the ſuppuration and cicatrization of the wound. The reſult of this treatment will be, that

that in proportion as the internal ſurface of the eye-lid heals, the everſion will gradually diminiſh, and the edge of the eye-lid will finally regain its natural poſition.

This method of treatment, as I have juſt ſtated, is only practicable with perfect ſucceſs in caſes of recent and very ſlight everſion.* Where the diſeaſe is conſiderable and of long ſtanding, the moſt expeditious and certain method of remedying it, is that of extirpating the whole fungus, cloſe to the internal muſcular ſubſtance of the eye-lid. The patient being therefore ſeated, and his head bent ſomewhat backwards, the the ſurgeon ſhould hold the everted eye-lid firmly with the point of the fore and middle finger of his left hand, and with the curved ſciſſars † in his right ſhould include the excreſcence of the internal membrane of the palpebra, as near to its baſe as poſſible, and remove it completely; the ſame operation ſhould then be repeated on the other eye-lid, when both are affected; and if the excreſcence be of ſuch a figure that it cannot be exactly included between the ſciſſars, it ſhould be raiſed as much as poſſible with the forceps, or a double-pointed hook, and divided at its baſe by means of a ſmall convex-edged

* In theſe inſtances, I believe, the diſeaſe may in general be effectually and more ſpeedily removed by ſcarifying the internal membrane of the eye-lid with the point of a lancet.

† Plate III. fig. 3 and 4.

biſtoury.

biſtoury.* The hæmorrhage, which at the commencement of the operation is conſiderable, either ceaſes ſpontaneouſly or may be checked by waſhing the eye with cold water. The dreſſing ſhould conſiſt of two compreſſes, one placed upon the ſuperior the other upon the inferior arch of the orbit, and over theſe the uniting bandage in the form of the *monoculus*, or applied in ſuch a manner as to preſs upon and replace the edge of the eye-lid, ſo that it may cover the eye-ball again. When the firſt dreſſings are removed, which ought to be 24 or 30 hours after the operation, the eye-lid will be found to have recovered entirely, or nearly ſo, its natural poſition. The dreſſing ſhould afterwards conſiſt in waſhing the ſore twice a day, either with ſimple water, with the aqua malvæ, or with barley water and mel roſæ, until it is completely healed. If towards the end of this period, the wound aſſume a fungous appearance, or if the ſurgeon perceive that the eye-lid is yet too far ſeparated from the eye-ball, it ſhould be frequently touched with the argentum nitratum, in order to deſtroy a little more of the internal membrane of the eye-lid, ſo that when the cicatrization is completed, the contraction may be ſuch as to draw the edge of the palpebra nearer to the ball of the eye. In the mean time proper meaſures

* Plate III. fig. 12.

ſhould

ſhould be employed to remove the cauſes by which the everſion has been produced; as the chronic ophthalmia, the morbid determination of humours to the eye, and the weakneſs and varicoſe ſtate of the veſſels of the conjunctiva, of which I ſhall have occaſion to ſpeak in the chapter on ophthalmia.

The indication of cure in the ſecond ſpecies of everſion, or that which is produced by an accidental ſhortening of the integuments of the eye-lids or of the ſurrounding parts, is not different from that already mentioned. If the ſhortening of the integuments has been capable of everting the eye-lid, the extirpation of a portion of its internal membrane, and the cicatrix which muſt enſue from it, may, for the ſame reaſons, reſtore the eye-lid to its former poſition. But ſince that portion of the integuments which is loſt can never be reproduced, and in whatever degree the whole eye-lid is ſhortened, ſo it muſt always remain, even after the moſt ſucceſsful operation; conſequently the treatment of the ſecond ſpecies of everſion can never ſucceed ſo perfectly as that of the firſt ſpecies, and the eye-lid, though replaced, will always remain ſhorter than natural, in a degree proportionate to the greater or ſmaller quantity of integuments loſt. In a conſiderable number of caſes, indeed, the everſion appears greater than it is in reality, with regard to the ſmall quantity of ſkin which is

deſtroyed

deſtroyed; for, when the diſeaſe has once taken place, however ſmall the contraction of the integuments may be, the tumefaction of the internal membrane gradually increaſes, ſo as to produce a complete everſion of the eye-lid. The operation in theſe caſes is attended with a degree of ſucceſs which could not have been expected by thoſe unacquainted with the nature of the ſubject; for after the fungus of the internal membrane of the diſeaſed eye-lid has been extirpated, and its edge brought towards the ball of the eye, the ſhortening of the eye-lid which remains is ſo inconſiderable, that in compariſon with the deformity and inconvenience which it occaſioned in a ſtate of everſion, the cure may be conſidered as perfect; of this we have an example in the annexed figure.* Whenever therefore the retraction of the integuments of the everted eye-lid, and conſequent ſhortneſs of it is not ſo conſiderable as to prevent it from riſing again and covering the eye, if not perfectly, at leaſt in a tolerable degree, the ſurgeon ſhould undertake the operation in the manner already explained, employing, according to circumſtances, ſometimes the curved ſciſſars, at other times the convex-edged biſtoury, or both. When the diſeaſe has exiſted for a conſiderable time, and the in-

* Plate II. fig. 1, 2.

ternal

ternal membrane has become hard and almoſt callous, the everted eye-lid ſhould be covered with a ſoft poultice of bread and milk for ſome days previous to the operation, in order to render it flexible and more eaſily ſeparable than in its former rigid ſtate.

It is one of the moſt certain and demonſtrable facts, that the diviſion of the cicatrices of the integuments, which have given riſe to the contraction and everſion of the eye-lid, does not produce a permanent elongation of it, and therefore is attended with no advantage in the treatment of this diſeaſe. We ſee the ſame thing happen after deep and extenſive burns of the ſkin of the palm of the hand and fingers, in conſequence of which, whatever diligence be employed during the treatment to keep the hand and fingers in an extended ſtate, as ſoon as the cicatrix is complete, the fingers are found irremediably bent. The ſame thing takes place after extenſive burns of the face and neck. Fabricius ab Aquapendente,* who was well aware of the inutility of the ſemilunar diviſion of the integuments of the eye-lids, in order to remedy their ſhortening and everſion, propoſes, as the beſt expedient, that of ſtretching them by means of adheſive plaſters applied upon the eye-lid and the ſupercilium, and tied firmly to-

* De Chirurg. Operat. cap. xv.

gether.

gether. Experience has taught me that whatever advantage may be derived from this practice, is equally obtained by the application of a bread and milk poultice for ſeveral days, afterwards of oily embrocations, and laſtly of the *uniting* bandage, ſo applied as to extend the ſhortened eye-lid in a direction contrary to that produced by the cicatrix: which practice ought to be diligently employed in every caſe previouſly to the operation being undertaken.

When the operation is determined upon, the patient, if an adult, being ſeated in a chair, or if a child, laid upon a table with the head a little raiſed, and held by proper aſſiſtants, the ſurgeon, by means of a convex-edged biſtoury, ſhould make an inciſion of a ſufficient depth in the internal membrane of the eye-lid along the tarſus, carefully avoiding the *puncta lachrymalia*, then with the forceps he ſhould elevate the edge of the divided membrane, and continue to ſeparate it with the knife from the whole of the internal ſurface of the eye-lid, in the manner uſually employed in the anatomical diſſection of it, until the ſeparation be completed, as far as the point where this membrane is about to leave the eye-lid, to reach the anterior hemiſphere of the eye-ball, receiving the name of conjunctiva. The ſeparation being carried to this point, the ſurgeon, raiſing the membrane with the forceps ſtill higher, ſhould entirely remove it by one or two

ſtrokes of the ſciſſars cloſe to the deepeſt part of the eye-lid. The dreſſing ſhould conſiſt as uſual in the application of a compreſs and the uniting bandage, in order to facilitate the return of the everted eye-lid towards the ball of the eye. On changing the dreſſings, one or two days after the operation, the eye-lid will be found in a great degree reinſtated, and the deformity which it occaſioned conſiderably leſſened.

It is ſeldom that the operation is followed by any unpleaſant ſymptoms, as vomiting, great pain, or violent inflammation. If, however, they ſhould take place, the vomiting may be relieved by means of an opiate clyſter, and the pain and inflammation with great tumefaction of the eye-lid leſſened by the application of a poultice, or bags of emollient herbs, employing at the ſame time internal antiphlogiſtic remedies, until theſe ſymptoms have entirely ſubſided, and ſuppuration has commenced upon the internal ſurface of the eye-lid. When the ſuppuration has taken place, the part ſhould be waſhed twice a day with barley water and mel roſæ, and the wound touched occaſionally with the argentum nitratum, in order to keep the granulations within certain bounds, and to promote a ſolid cicatrix capable of retaining the reduced eye-lid in its ſituation.

## Case XX.

A young woman, 20 years of age, of a delicate conſtitution, and of a lax and chlorotic fibre, after an obſtinate ophthalmia, had both the lower eye-lids turned outwards to the extent of about two lines. The diſeaſe, beſides disfiguring the patient's countenance, occaſioned a diſcharge upon the cheek of a mixture of tears and puriform matter. The everted edge of both eye-lids had a florid appearance, and was a little elevated and fungous.

After having tried the uſe of aſtringent collyria for a week, without advantage, I formed the reſolution of deſtroying deeply the internal margin of both eye-lids by means of cauſtic. For this purpoſe having ſeparated the eye-lids one after the other from the eye-ball, and carefully wiped them, I applied the argentum nitratum upon the ſuperficial fungus of their internal margin, and preſſed it upon it ſo ſtrongly as to produce an eſchar, which was immediately covered with a layer of oil, and the patient's eyes waſhed ſucceſſively with new milk. This application of the cauſtic was repeated ſix times at different intervals, and always with evident advantage; ſo that in 26 days I had the ſatisfaction to ſee the edges of both eye-lids raiſed to their ſituation. The collyrium vitriolicum

was employed for a conſiderable time after the cure, in order to prevent a return of the diſeaſe.

## Case XXI.

Giuſeppa Milcri, a girl 9 years of age, a native of Pavia, of an unhealthy conſtitution, incautiouſly ran the point of a knife acroſs the cornea of the right eye. This accident left a deformed cicatrix, and occaſioned a chronic ophthalmia, which by degrees degenerated into an enormous ſwelling of the internal membrane of the lower eye-lid, producing an everſion of it, and giving the child's countenance a diſguſting appearance. At the time of her admiſſion into this ſchool of clinical ſurgery, which was ſome months after the appearance of the ectropion, the child complained of no pain when the fungus was touched with the point of the finger.

I proceeded to remove the fungus with the curved ſciſſars, and covered the part with a piece of linen ſpread with an ointment conſiſting of wax and oil, over which I applied a compreſs and the uniting bandage. When the dreſſings were removed, four days afterwards, the eye-lid had already riſen up conſiderably, and on the following day the ſuppuration was completely eſtabliſhed. The eye-lid remained nearly

ſtationary

ſtationary for a week. As ſoon, however, as the wound began to heal, and conſequently to contract, the eye-lid roſe up in an equal degree, and when the cicatrix was complete it recovered its natural poſition.

During the whole of the treatment, which took up about a month, no other external remedy was employed than a lotion of barley water and honey of roſes, with ſome applications of the argentum nitratum, when the granulations were too prominent. Afterwards an electuary, conſiſting of cinchona and the antimonial æthiops, was employed with advantage. When the wound was completely healed I directed the ophthalmic ointment of Janin to be uſed morning and evening for ſome weeks, in order to ſtrengthen the varicoſe veſſels of the conjunctiva, which was attended with the beſt ſucceſs. The extenſive ſcar upon the cornea had entirely deprived the child of the ſight of the eye, but the ectropion was completely cured.

## Case XXII.

A countryman, 38 years of age, was attacked with an eryſipelas of the face, in conſequence of which the eye-lid and ſupercilium of the left ſide were greatly ſwollen, and the inflammation terminated in ſuppuration. The matter diſcharged itſelf by burſting at three diſtinct places

in the upper eye-lid, near the ſuperciliary arch. The ſurgeon, in order to expedite the healing of the ulcers, determined to divide and remove by the knife the apertures from which the matter was diſcharged; and whether in this operation he had extirpated a portion of the integuments of the eye-lid, or they had been too much deſtroyed by the ulceration, in proportion as the ulcer healed, the upper eye-lid was obſerved to be more and more drawn upwards and everted, and ultimately ceaſed to cover the eye-ball. In conſequence of which the internal membrane of the eye-lid, from being long expoſed to the air, became greatly tumefied and by degrees degenerated into a fungous ſubſtance. In order to remedy this inconvenience in the beſt poſſible manner, I made the patient ſit in the ſame poſition as in the operation for the cataract, and with a ſmall convex-edged ſcalpel I began to ſeparate the internal fungous membrane, commencing the inciſion near the external, and continuing to divide it nearly as far as the internal angle of the eye, taking care to avoid the part occupied by the *punctum lachrymale*. Having done this, I took hold of the membrane with the forceps, and then, continuing the inciſion, I ſeparated it from the whole internal ſurface of the eye-lid, as far as where this membrane is about to reach the anterior hemiſphere of the eye-ball, and form the conjunctiva.

As

As ſoon as the membrane was ſeparated, the eye-lid fell upon the ball of the eye, and almoſt entirely recovered its former appearance. The loſs of blood was inconſiderable; but a little after the operation the patient was ſeized with a violent vomiting, which continued for two hours, and was checked by adminiſtering opium freely by the mouth and by clyſter.

For a few days the eye-lid was moderately ſwollen, but ſubſided on the commencement of the ſuppuration on its internal ſurface, and in 14 days from the operation the patient was completely well, as far as the nature of the caſe admitted.

The eye was not disfigured, although the eye-lid in reality was a little ſhorter than the right. He could raiſe it and depreſs it at pleaſure, and apply it upon the eye-ball. When he wiſhed to cloſe his left eye entirely, the lower eye-lid was carried upwards beyond its uſual limits, and ſo ſupplied the defect of length in the upper one.

## Case XXIII.

A boy, 10 years of age, in the beginning of October 1790, having lain during the night wrapt in a ſheet upon which ears of corn had been beaten, awoke in the morning with the eye-lids of his left eye ſwollen and painful. Notwithſtanding the uſe of emollient topics,

an abſceſs formed in the upper eye-lid, which burſt below the ſupercilium towards the temples, and left an opening which could not be healed by any methods of treatment which were employed. In proceſs of time the upper eye-lid began to be turned outwards, and its internal membrane to ſwell and protrude, and to increaſe the everſion of it prodigiouſly.

Towards the middle of June 1791, about eight months from the firſt appearance of any diſeaſe, the fungous excreſcence formed by the internal membrane of the eye-lid, covered a conſiderable part of the upper hemiſphere of the eye-ball, and the everſion was ſo conſiderable that the margin of the eye-lid, eſpecially towards the temples, was almoſt cloſe to the eye-brow. The eye-lid, however, readily yielded on being preſſed upon with the point of the finger, and appeared as if it would have deſcended and covered the eye had it not been for the intervention of this fungous ſubſtance formed by its internal membrane.

As the fungus was dry and indurated, I ordered that a bread and milk poultice ſhould be applied upon it for 24 hours; I then removed the whole of it with the curved ſciſſars at one ſtroke, carefully avoiding the ſuperior lachrymal punctum.

After the extirpation it was diſcovered that there was a piece of wheaten ſtraw almoſt an inch

inch long and half a line thick, contained in the fold of the fungus. The whole of the ſuperfluous part of the internal membrane being now removed, the eye-lid deſcended over the eye ſo as to cover it conveniently. The operation was not followed by any unpleaſant ſymptom, and 10 days afterwards the child left the hoſpital, ſo far cured that no defect remained, except a ſmall elevation of the eye-lid near the external opening where the abſceſs had burſt.

As there can be no doubt that this piece of ſtraw had prevented the ulcer of the eye-lid from healing, during eight months after the burſting of the abſceſs, ſo it is ſingular that this extraneous body ſhould have been forced through the internal membrane of the eye-lid, without the child having been awaked by it.

## Case XXIV.

Giuſeppe Antonia Scanarotti, aged 36 years, living in the vicinity of Stradella, had a wart for a conſiderable time near the inferior orbital arch of the right ſide, which in January 1795 began to be painful. A ſurgeon in that neighbourhood applied a cerate upon it, the effect of which was, that two days afterwards he was ſeized with an eryſipelas, which extended over the whole of the right ſide of the face. The ſurgeon then altered his plan, and as ſoon as the

the eryſipelas began to diſappear he applied the actual cautery upon the tubercle, and deſtroyed it deeply, covering the eſchar with a poultice of bread and milk, which was continued for ſeveral days. On the looſening of the eſchar the part was found in the ſtate of a ſimple wound, and healed in the courſe of two months.* In conſequence of this cicatrix the lower eye-lid was drawn a little downwards and outwards. In proceſs of time the internal membrane of the eye-lid began to be elevated, and to aſſume a fungous appearance, and in about two years from the time of the accident, the fungus became ſo exuberant as to evert the whole of the eye-lid in the manner repreſented in the 1ſt figure of the 2d plate. The great deformity of the countenance, and the perpetual weeping of the eye which the diſeaſe occaſioned, induced the patient to come into the hoſpital the 29th of December 1797.†

On preſſing the lower eye-lid upwards with the point of the finger, I found that the ſkin yielded ſufficiently to allow of its being nearly reſtored to its natural poſition, and was therefore induced to hope that this poor man's

* Plate II. fig. 1.

† This caſe is recorded in the 1ſt vol. 4th part, p. 806, of a journal tranſlated from the German, by Thomas Volpi, entitled, Biblioteca della più recente letteratura medico-chirurgica. *Léveillé.*

condition

condition might be ameliorated. And as the fungus of the everted eye-lid was hard and coriaceous, I covered it for three days with an ointment conſiſting of oil and wax ſpread upon linen, over which was applied a poultice of bread and milk.

On the 3d of January 1798, the patient being placed in a chair, with the ſmall convex-edged biſtoury I made an inciſion along the internal margin of the tarſus of the lower eye-lid, from one canthus to the other, avoiding the punctum lachrymale; and by continuing to ſeparate the internal membrane downwards, I removed along with it the whole of the fungus. After having covered the part with a piece of linen ſpread with oil and wax, I applied a very high compreſs upon the zygoma and eye-lid, and over it the *uniting* bandage in the direction of the *monoculus*.

On the 6th the dreſſing was removed for the firſt time, and the eye-lid was found to have advanced more than two-thirds towards its natural poſition. I waſhed the parts with the aqua malvæ made tepid, and renewed the dreſſing as at firſt.

On the 9th the eye-lid had riſen up towards the eye-ball more than on the preceding days. The granulations being too luxuriant, were touched with the argentum nitratum, and the eſchar was immediately ſmeared with oil.

On

On the 10th, 11th, and 12th, nothing particularly occurred, except that the cicatrix began to be formed near the internal margin of the tarſus.

On the 13th, 14th, and 15th, it was neceſſary to touch the ulcer towards the internal angle of the eye with the argentum nitratum.

On 21ſt the wound was completely healed, by employing a waſh, conſiſting of the aqua calcis and mel roſæ, three times a day. The eye-lid had gained the higheſt degree of elevation it was capable of attaining, and preciſely as it is ſeen in the 2d figure of the 2d plate. The difference, though very inconſiderable, which is alſo obſervable in the figure, was proportionate to the loſs of integuments before ſuſtained in the part where the cicatrix was formed, a loſs not reparable by any ingenuity hitherto deviſed. By this operation, however, the deformity and weeping of the eye were removed.

## Case XXV.

Maria Tereſa Zeccone, of Marcignago, was afflicted at the age of ſix years with a malignant carbuncle on the inferior and ſomewhat lateral external part of the lower eye-lid of the right ſide, which produced a conſiderable deſtruction of the integuments. The deformed and tenſe cicatrix which ſucceeded it, occaſioned afterwards

wards an enormous everſion of the eye-lid. I examined this girl's eye when ſhe had attained the 16th year of her age. The everted portion was at leaſt five lines in breadth; the tears were inceſſantly diſcharged over the cheek. The eye-lid could be puſhed upwards only in a very ſmall degree, in conſequence of the contraction of the integuments, eſpecially towards the external angle of the eye. The great deficiency of integuments, and the rigidity of the cicatrix, did not permit me to hope for a perfect cure; however, I was deſirous of alleviating her condition, and a bed was therefore allotted to her in the hoſpital, on the 17th of December 1799. In order to render the integuments of the eye-lid and the cicatrix as flexible as poſſible, I directed that the part ſhould be anointed ſeveral times with lard, and that the uniting bandage ſhould be applied in ſuch a manner as might tend to elongate the ſkin of the cheek and affected eye-lid from below upwards; which was employed until the 22d day of the ſame month with great advantage.

The following day I performed the operation, by making an inciſion with the convex-edged biſtoury upon the internal fungous membrane of the everted eye-lid, cloſe to the tarſus, from the external towards the internal angle, avoiding the inferior *punctum lachrymale*, and having ſeparated it in a great meaſure, and detached it

as

as far as where it begins to receive the name of conjunctiva, I raiſed it with the forceps and completely removed it by a ſingle ſtroke of the curved ſciſſars. I deſired the patient to cloſe her eye as much as poſſible, and having covered the part with a doſſil of dry lint, to repreſs the bleeding, I applied the uniting bandage upon the eye-lid. The dreſſing was removed two days afterwards, and the eye-lid found ſtraightened and conſiderably elevated towards the eye-ball. The wound was waſhed with warm water, and covered with a piece of linen ſpread with the ointment, conſiſting of oil and wax, and the uniting bandage reapplied ſo as to preſs the integuments of the eye-lid ſtill more upwards.

On the 27th the ſuppuration was very copious, and the wound had a tendency to become fungous. On the 29th this fungus had increaſed ſo as evidently to oppoſe the farther elevation of the eye-lid, I therefore removed it at once with the curved ſciſſars.

On the 1ſt of January 1800, the ſuppuration was again abundant. The wound was waſhed ſeveral times a day with barley water and mel roſæ. On the 5th I ordered the ophthalmic ointment of Janin to be applied upon the internal ſurface of the eye-lid at bed-time, in order to repreſs the tendency which the wound always

had to the formation of fungus. This application was continued until the 10th.

At this period the eye-lid had almoſt attained the greateſt degree of elevation of which it was capable, and embraced the lower hemiſphere of the eye-ball, ſo that the tears were no longer diſcharged over the cheek.

From the 10th to the 20th the wound was occaſionally touched with the argentum nitratum, and waſhed with barley-water and honey; by means of which it was perfectly healed.

On the 22d the girl left the hoſpital very well ſatisfied with her improved appearance. For no other defect remained than that depending on the ſhortneſs of the lower eye-lid, which, however, was not very evident, unleſs when ſhe looked upwards.

CHAP.

## CHAP. VII.

### OF THE OPHTHALMIA.

THERE are two ſpecies of ophthalmia: the one acute and truly inflammatory, ariſing from an exceſs of ſtimulus and reaction of the living ſolid; the other chronic, from debility which is moſt frequently confined to the veſſels of the eye or thoſe of the eye-lids, but occaſionally is connected with a weakneſs of the general conſtitution at the ſame time. The Arabian phyſicians have not improperly denominated the one ophthalmia *calida*, the other *frigida*.

This diſtinction, founded on obſervation and experience, is the moſt certain guide which we have in the treatment of the ophthalmia. For the firſt ſpecies of this diſeaſe invariably requires the uſe of general antiphlogiſtic remedies, and mild emollient applications; the other that of aſtringent and corroborant remedies, either alone or conjoined with the internal adminiſtration of tonics, in order to ſtrengthen the patient's general conſtitution.

Beſides

Beſides this diſtinction, it is in my opinion of the greateſt importance, in the treatment of this diſeaſe, to know that the truly acute inflammatory ophthalmia, even when treated in the moſt effectual manner, is ſcarcely ever ſo completely reſolved, that a certain period having elapſed, and the inflammation entirely ceaſed, ſome ſmall degree of chronic ophthalmia does not remain in the conjunctiva and ſurrounding parts from local debility. This takes place either in conſequence of the diſtenſion of the veſſels of the eye, during the period of inflammation, or of the increaſed morbid ſenſibility of the whole organ of viſion; which increaſed ſenſibility continuing in the eye, after the acute inflammatory ophthalmia has ceaſed, keeps up in that organ, and the parts ſurrounding it, a morbid determination of blood, which may readily lead the inexperienced to believe that the inflammation of the eyes is not ſubdued.

Of the great importance of this obſervation, in determining with preciſion, at the bed-ſide of the patient, not only the ſpecies, but alſo the different ſtages of the diſeaſe, and conſequently the ſelection of remedies beſt adapted to each of them, I have been over and over again convinced, from the reſult of my own practice and that of others. For I have frequently remarked, that thoſe ſurgeons, who, whether guided by theſe principles or by an extenſive experience only, know how to avail themſelves

of the preciſe moment in which the *acute* ophthalmia changes into the *chronic* from local debility, ſpeedily conduct the diſeaſe to a termination by ſubſtituting aſtringent and corroborant, for emollient and relaxing applications; while others, who either from ignorance or inattention are deceived by the appearances, continue the uſe of emollient and mild remedies, and thus perpetuate the turgeſcency of the veſſels and the rednes of the conjunctiva, which they ſuppoſe to be as much inflamed as at the beginning. It is preciſely on this account that every empiric can boaſt of having cured obſtinate caſes of ophthalmia with his *aqua mirabilis*, while he impoſes upon the public in vending it as a ſpecific for ophthalmia in general; ſince this collyrium, which quickly diſſipates the diſeaſe in the ſecond ſtage, greatly aggravates it in the firſt. On this ſubject, ſays Hoffman;* *auſim dicere, plures viſu privari ex imperitia applicandi topica, quam ex ipſa morbi vi ac magnitudine*; which is particularly applicable to the ophthalmia.

In order to place theſe general principles relative to the ophthalmia in the cleareſt light, and to render them intelligible to the young ſurgeon, I have thought it neceſſary to enter into a minute detail of the phænomena of this otherwiſe frequent and well known diſeaſe.

* Diſſertat. de erroribus vulgaribus circa uſum topicorum in praxi, § 7.

The

The *acute* inflammatory ophthalmia is either mild or violent; both are accompanied with the ſame ſymptoms which characterize the inflammation of other parts, with the addition however of a ſeries of other unpleaſant effects depending upon the diſturbed function of the organ of viſion.

In caſes of the mild acute ophthalmia, the internal ſurface of the palpebræ and the white of the eye become unuſually red, the patient feels a ſenſe of heat in the eyes greater than natural, accompanied with heavineſs, pruritus, and pricking, as if ſmall particles of ſand had accidentally got into them. In that part of the eye-ball where the ſenſation of pricking is moſt complained of, a ſmall faſciculus of blood veſſels is conſtantly met with upon the conjunctiva more elevated and turgid than the reſt of the ſmall veſſels of the ſame order. The patient voluntarily keeps his eye-lids half cloſed, on account of the ſtiffneſs and difficulty which he finds in opening them, and becauſe by this means he moderates the impulſe of the light, to which he cannot expoſe himſelf, in any conſiderable degree, without feeling the ſenſe of heat, the pricking, and diſcharge of tears increaſed. If the patient poſſeſs much ſenſibility, his pulſe becomes a little quick, eſpecially towards the evening, or he is affected with laſſitude, dryneſs

of the ſkin, ſlight ſhiverings, and in ſome caſes with nauſea and inclination to vomit.

This diſeaſe is frequently of a catarrhal character, or what is commonly called a cold in the head, attended with a defluxion, in which the eyes as well as the frontal ſinuſes are affected, and ſometimes alſo the fauces and trachea. This affection is very often occaſioned by frequent variations of the atmoſphere; by imprudent tranſitions from heat to cold; by the predominance of north winds; by journies performed in the ſummer through moiſt, unhealthy, or ſandy countries; by long expoſure of the eyes to the vivid rays of the ſun; and ſimilar other cauſes. It is not ſurpriſing therefore that this diſeaſe ſhould be frequently obſerved to be epidemical, and to attack perſons of every age and ſex. In ſome particular caſes this affection ariſes principally from the ſtomach and primæ viæ, being ſtimulated by unwholeſome matters, as is frequently the caſe with thoſe who are debilitated, or badly nouriſhed, or who are greatly addicted to intoxication, or the uſe of coarſe and indigeſtible food. The preſence of ſuch cauſes is indicated by the patient's habit of body and manner of living, the nauſea which he complains of, the tendency to vomit, or repugnance to every kind of animal food, pain in the head reſembling hemicrania, the furred ſtate of the tongue, fetid breath, and continual flatulency.

To

To theſe cauſes may be added, the ſuppreſſion of ſome periodical ſanguineous evacuation, as the menſtrual flux in women, the hemorrhoidal in men, or that which takes place from the noſtrils.

The mild acute ophthalmia may be ſpeedily cured by a proper regimen, and by purging the patient gently with a grain of the antimonium tartarizatum diſſolved in a pint and a half of the decoction of the root of the triticum repens (dog-graſs) taken in divided doſes, and occaſionally repeated for ſome days, provided it does not occaſion exceſſive purging. The external treatment, ſuppoſing it to be carefully aſcertained that the diſeaſe does not ariſe from the introduction of any extraneous ſubſtance between the palpebræ and eye, conſiſts in waſhing the part frequently with the aqua malvæ made tepid, and in the repeated application of bags of emollient herbs boiled in new milk.* If, however, from the ſymptoms before enumerated the diſeaſe ſhould appear to ariſe, either wholly or in part, from ſordes in the ſtomach or primæ viæ, nothing will contribute more to remove the diſeaſe than the timely adminiſtration of an emetic. Whenever likewiſe the ophthalmia ſhall have been produced, either entirely or partly, by the ſuppreſſion of the menſtrual or hemorrhoidal

* Theſe bags ſhould be made of the fineſt gauze inſtead of linen.

flux, or of the ... dical diſcharge of blood from the noſe, great advantage will be derived from the application of leeches to the labia pudendi, or to the hemorrhoidal veſſels, or in the laſt caſe to the pinnæ naſi, never omitting the uſe of mild and emollient applications to the eyes; and that the more aſſiduouſly in proportion to the obſtinacy of the inflammatory ſymptoms, particularly the pain and heat.

By means of this treatment the inflammatory ſtage of the mild acute ophthalmia generally ceaſes in the courſe of four or five days; which is rendered evident by obſerving, that, independently of what uſually takes place towards the termination of inflammation in parts which partake of the nature and actions of mucous membranes, the patient no longer complains of the troubleſome ſenſe of heat, heavineſs, ſtiffneſs, and pricking in the eyes, which he felt at firſt; and that, on the contrary, he can open his eyes without pain or difficulty, and bear a moderate degree of light, without its increaſing the diſcharge of tears or gumming of the eyelids.

Although, under theſe circumſtances, the white of the eye ſtill continues red, and appears inflamed, it is not ſo in reality. The ophthalmia is now to be conſidered as having paſſed from the inflammatory ſtage into that ariſing from laxity or debility of the veſſels of the

the conjunctiva and internal membrane of the palpebræ, and the ſurgeon in ſuch caſes would commit an egregious error if he were to continue the uſe of the emollient applications. On the contrary, he will ſpeedily free himſelf from all embarraſſment, if in place of theſe local emollient remedies thoſe of an aſtringent and corroborant nature be ſubſtituted, as the collyrium vitriolicum, or that conſiſting of eight grains of the ceruſſa acetata, ſix ounces of plantain water, and a few drops of the camphorated ſpirit of wine, dropping it into the eyes every two hours, or immerging them in it by means of an eye-glaſs. By theſe means the relaxed veſſels of the conjunctiva, as well as thoſe of the internal ſurface of the palpebræ, very quickly recover their former vigour and the ophthalmia entirely diſappears.

In ſome of theſe caſes of the benign acute ophthalmia, eſpecially in thoſe which are epidemic, from intemperance of ſeaſon, the inflammatory ſtage is extremely mild, and terminates ſo quickly as to be ſcarcely obſerved. And this is therefore perhaps the only caſe of eryſipelatous inflammation, as the ophthalmia is in general, in which cold and repellent applications are advantageous on its firſt appearance, as cold water with lemon-juice or vinegar, or the white of an egg beaten with roſe-water and a little alum. Theſe remedies employed in

other cafes of acute ophthalmia, though mild, but in which the truly inflammatory ſtage continues for ſome days, are exceedingly injurious.

The violent *acute* ophthalmia is attended with the ſame concourſe of ſymptoms as the mild, but they are far more malignant and ſevere. In this form of the diſeaſe there is a ſenſe of burning heat in the eyes, ſpaſmodic conſtriction of the whole eye-ball and ſupercilium, and an intolerance even of the weakeſt light. The weeping is ſometimes continual, copious, acrid, and mixed with mucus which tends to produce a coheſion of the eye-lids; at other times this is altogether wanting, and there is a complete aridity of the eye; the fever is ſmart; the pain in the whole head, and eſpecially the neck, is inſupportable; accompanied with inceſſant watchfulneſs. The pupil is alſo more contracted than natural, the conjunctiva appears in every part of it of a deep red colour, and the very delicate net-work of ſmaller veſſels, which, in the mild acute ophthalmia, is obſervable upon the anterior hemiſphere of the eye, among the more elevated *faſciculi* of blood veſſels, paſſing from one faſciculus to another, cannot be diſtinguiſhed, but all are equally turgid, and as it were twiſted together, compoſing one excreſcence, which is elevated upon the eye-ball, and has a tendency to project between the palpebræ.

If,

If, unfortunately, the diſeaſe make further progreſs, and one or more veſſels, by the blood being violently thrown into them, are lacerated on the ſide next the eye-ball, a quantity of blood is effuſed into the cellular membrane, which connects the conjunctiva to the anterior hemiſphere of the eye; in conſequence of which the conjunctiva becomes gradually elevated upon the eye-ball, and projects towards the eye-lids, ſo as to conceal within it the cornea, which appears as if it were depreſſed. This higheſt degree of the acute ophthalmia is that which is called by ſurgeons *chemoſis*.

In general, the violent *acute* ophthalmia is principally confined to the external part of the eye-ball. Occaſionally the internal part of the eye is affected alone, or at leaſt in a greater degree than the external parts of it. When the diſeaſe affects the internal part of the eye, it is indicated by the violence of the pain felt at the bottom of the orbit, not correſponding at the moment to the changes which take place in the conjunctiva and eye-lids. I ſay at the moment, becauſe the internal ophthalmia is in general very ſoon ſucceeded by an inflammation of the external parts of the eye alſo. From conſidering, therefore, the ſmall alteration which appears externally, the great averſion which the patient has, even to the weakeſt light, the red appearance of the iris, the great contraction of the

the pupil, and occaſioually the red and turbid ſtate of the aqueous humour, it is not unreaſonable to ſuſpect, that in the higheſt degree of this diſeaſe, as in that which affects the external parts, there is an extravaſation of blood into the chambers of the eye, more particularly between the choroid and ſclerotic coats, to which cauſe the generally unhappy iſſue of the internal ophthalmia ought to be attributed, rather than to any other, which, unleſs it produce a ſuppuration of the eye, generally terminates in amauroſis.

The violent acute ophthalmia demands the moſt rigorous proſecution of the antiphlogiſtic plan of treatment in its full extent. Experience has ſhown that a delay in the employment of evacuations, and eſpecially the neglect of taking away a ſufficient quantity of blood, are the the principal cauſes of the diſeaſe attaining the ſtate of chemoſis, and threatening either the formation of matter, or the effuſion of coagulable lymph within the eye, or at leaſt degenerating into the obſtinate *chronic* ophthalmia, from the exceſſive diſtenſion of the veſſels of the conjunctiva during the inflammatory ſtage.* In all caſes, therefore, of the violent acute ophthalmia, blood ſhould be taken away quickly

* See upon this ſubject the precepts and practical obſervations of Galen. De curat. rar. par ſanguinis miſſiones. Cap. 17.

and

and abundantly from the veins of the arm or foot, in proportion to the age and temperament of the patient, and afterwards, according to circumſtances, from the neighbourhood of the eyes, by means of leeches applied in the proximity of the eye-lids, eſpecially near the internal angle of the eye upon the angular vein at its junction with the *vena frontalis, orbitalis profunda,* and *tranſverſalis faciei*; always premiſing, however, the previous abundant evacuations of blood from the arm or foot.* And if the diſeaſe ſhall have appeared in conſequence of the ſuppreſſion of ſome periodical ſanguineous diſcharge, as that of the noſe, uterus, or hemorrhoidal veſſels, inſtead of applying the leeches round the eye-lids, it will be more advantageous to apply them in the firſt caſe upon the *pinnæ naſi,* and in the others to the internal part of the *labia pudendi,* or to the hemorrhoidal veins. In the caſe of a young woman, 19 years of age, who not long ſince was attacked with a violent inflammation in both her eyes, a little after the ſudden ſuppreſſion of the menſes, the application of leeches to the internal part of the *labia pudendi,* after a copious evacution of blood from the arm, pro-

* It appears not a little extraordinary, that no mention is made of the diviſion of the anterior branch of the temporal artery, or rather that this mode of taking away blood ſhould not have ſuperſeded the employment of general bleeding from the veins of the arm or foot.

duced

duced ſo good an effect, that in leſs than 24 hours the inflammation abated, and the patient was greatly relieved. I have frequently had occaſion to remark the ſame thing in caſes of the violent acute ophthalmia, in conſequence of the ſuppreſſion of the periodical hemorrhoidal flux, as well as that of the noſe.

The general and local abſtraction of blood, although copious, is not always ſufficient to produce a ſpeedy diminution of that higheſt degree of the diſeaſe, which is termed chemoſis. In ſuch urgent caſes recourſe muſt be had to ſome other expedient, in order to produce a ſpeedy diſcharge of the blood which is extravaſated in the cellular membrane, connecting the conjunctiva to the anterior hemiſphere of the eye, by which this membrane is enormouſly elevated and diſtended. This conſiſts in the circular exciſion of the projecting portion of the conjunctiva with the curved ſciſſars, at the part where the cornea and ſclerotica unite; by means of which not only the whole of the blood which is extravaſated under the conjunctiva is diſcharged, and with immediate relief to the patient, but alſo that, which, notwithſtanding the abundant general evacuations of blood, might ſtill greatly diſtend the veſſels of this membrane. This operation is infinitely preferable to ſcarification, which is practiſed in ſuch caſes by the greater part of ſurgeons; ſince the

the latter is not ſufficient to diſcharge the blood which is extravaſated under the conjunctiva, and rather increaſes than diminiſhes the irritation, and the determination of blood to the eye.

After the abundant general and local bleedings, the patient's bowels ſhould be purged by mild antiphlogiſtic aperients, as the pulp of the tamarind, cryſtals of tartar, tartarized kali, or vitriolated magneſia; and in caſes of ſordes of the ſtomach an emetic ſhould be given without heſitation; that is, for an adult, two ſcruples of ipecacuanha with a grain of the antimonium tartarizatum; the patient ſhould afterwards be directed to take for ſeveral ſucceſſive days, in divided doſes, a grain of tartarized antimony, with two drams of cryſtals of tartar, diſſolved in a pint of the decoction of the radix tritici repent. (dog graſs) or milk whey.

Among the beſt external remedies, eſpecially in plethoric ſubjects, and after a ſufficient quantity of blood has been taken away and the bowels opened,* is deſervedly ranked the application of a bliſter to the neck. Not, however, becauſe the bliſter produces a diſcharge of ſerum from the part to which it is applied, but becauſe

* Hoffman Medicinæ ration. ſyſtem, T. 4. part 1. ſect. 2. Setacea et veſicatoria non facile applicanda in plethoricis, niſi ſoluta prius plethora; et alvo præſertim in cacochymicis, ſubducta.

it

it excites a conſenſual irritation, which ſuſpends, as it were, the morbid proceſs, by transferring it to the part which is artificially ſtimulated; and it is known, from obſervation, that the neck and back part of the ear are the parts which more readily ſympathize with the eyes than any other part of the head; in the ſame manner as the lobe of the ear with the teeth, the peritonæum with the urinary bladder, and the ſkin of the abdomen with the viſcera contained in it, &c.

With reſpect to the local remedies to be applied upon the inflamed eyes, the uſe of mild and emollient applications ſhould never be departed from, as bags of mallows boiled in new milk, or a poultice of bread and milk with ſaffron, the pulp of roaſted apples, and others of that claſs, which ought to be renewed every two hours or oftener. In order to moderate the exceſſive heat which is felt in the eyes, nothing is more advantageous than introducing with the point of a probe between the eye-lids and ball, the white of a freſh egg, or the mucilage of the pſyllium prepared in the diſtilled water of mallows. The patient ſhould be recommended to lie in bed with his head as much raiſed as poſſible, and not to do any thing which may impede or interrupt his perſpiration. If the edges of the eye-lids ſhould have much tendency to cohere, eſpecially during the night,

they ſhould be ſmeared at bed-time with a liniment conſiſting of oil and wax; as nothing contributes more to aggravate the painful effects of the diſeaſe, than the confinement and redundancy of the ſcalding tears between the ball of the eye and the palpebræ.

By the timely employment of theſe efficacious means, the inflammatory ſtage of the violent acute ophthalmia is in general ſubdued by the 5th, 7th, or 11th day. This is marked by the entire ceſſation of the fever, by the patient no longer complaining of the burning heat or lancinating pains in the eyes; by the ſubſidence and flaccidity of the eye-lids, and by the patient in general becoming eaſy, and having a return of his appetite. The eyes, which before were either entirely dry or poured out a thin and acrid ſerum, now diſcharge a quantity of mucous matter, which affords relief, the patient opens and ſhuts the eye-lids without much difficulty or averſion to a moderate degree of light, and, laſtly, the humours are not rendered turbid by extraneous matters.

On the appearance of theſe ſymptoms, notwithſtanding the redneſs and tumefaction of the conjunctiva ſtill continue, it will be proper to deſiſt from debilitating the patient any further, and inſtead of emollient and relaxing applications, (except in caſes where the exciſion of the conjunctiva has been requiſite, of which I

ſhall

ſhall ſpeak afterwards) it will be proper to ſubſtitute thoſe of an aſtringent and corroborant nature, as a collyrium conſiſting of the acetated cerus and diſtilled plantain water, or compoſed of 6 grains of vitriolated zinc, 6 ounces of diſtilled water, one ounce of the mucilage of quince-ſeed, and a few drops of camphorated ſpirit of wine, which ſhould be inſinuated between the eye-lids every two hours, and the eyes immerſed in it by means of an eye-glaſs. It ſhould be obſerved that perſons are occaſionally met with who cannot bear cold applications to the eyes, eſpecially in winter. In ſuch caſes the collyria ſhould be uſed at firſt tepid, and the temperature gradually diminiſhed, until the patient's exceſſive ſenſibility is allayed, and they can be employed entirely cold.

A very efficacious remedy in this ſtate of the diſeaſe, or when after blood has been taken away copiouſly, and the bowels evacuated, the violent acute ophthalmia has paſſed into the ſecond ſtage, or that ariſing from local debility, is the Tinctura Thebaïca of the London Pharmacopœia,* two or three drops of which may be in-

* Rec. Opii colati unciam unam.
Cinnamom.
Caryophyl. arom. an. drachmam ſemis.
Vin. alb. merac. libram ſemis.

Macera per hebdomadam ſine calore; deinde per chartam cola. Adde, postquam colata ſunt, ſpiritus vini tenuioris viceſſimam circiter partem, ut tutiora ſint a fermentatione. Reponere oportet vitreis ampullis accurate obturatis.

ſtilled

ſtilled between the eye-lids twice a day, or only at night for ſeveral ſucceſſive days, and till the patient is completely cured. At the moment this remedy is diffuſed over the eye, it generally produces conſiderable heat and uneaſineſs; but this quickly ſubſides, and on the following morning the eye is found in a clearer and much better ſtate. It is neceſſary, however, to obſerve again, that this application, which is ſo uſeful in the ſecond ſtage of the diſeaſe, is exceedingly injurious in the firſt, or inflammatory ſtage, and that conſequently it ought never to be employed until after copious general and local bleeding, and evacuation of the bowels, and in ſhort until the inflammation has entirely ceaſed.* I can aver, from my own experience, that what Mr. Ware has aſſerted of the utility of this remedy, when employed with caution, and at a proper period, is not at all exaggerated.

When the ſurgeon has been under the neceſſity of making a circular exciſion of the conjunctiva, in order to prevent the progreſs of the chemoſis, he ſhould recollect that after the in-

* Chirurgical obſervations on the ophthalmy by James Ware. But the ſpeedy advantage of this remedy is not to be expected in all caſes indiſcriminately. In ſome the amendment is more ſlow and gradual, requiring the tincture to be made uſe of for a much longer time; and a few inſtances have occurred in which no relief at all was obtained from its firſt application. In caſes of the latter kind, in which the complaint is generally recent, the eyes appear ſhining and gloſſy, and feel exquiſite pain from the rays of light. P. 52.

flammatory ſtage of the diſeaſe is over, the ulceration which he has produced upon the eye-ball, at the junction of the cornea and ſclerotic coat, muſt contra-indicate the uſe of irritating and aſtringent collyria, ſince they would exaſperate the diſeaſe, and give occaſion to a renewal of the inflammation. In ſuch caſes he muſt be ſatisfied, after the inflammation has been diſſipated, with promoting the ſuppuration of the wound, by waſhing the eye frequently in the courſe of the day with mallow-water or new milk. The ſuppuration will preſent itſelf by a layer of mucus ſpread over the whole of the whitiſh circular zone, which remains after the diviſion of the conjunctiva; which zone, towards the decline of the ſecond ſtage of the diſeaſe, will gradually contract and heal, without leaving any veſtige of the wound made in the conjunctiva.

Laſtly, as ſoon as the patient is in a ſtate to ſupport a moderate degree of light without inconvenience, every kind of covering and incumbrance ſhould be removed from the eyes, except a piece of green, or black taffeta, which ſhould be ſuſpended from his forehead, in order that under this defence he may be at liberty to open and ſhut his eye-lids at pleaſure, and move the eye-ball freely. Thoſe who are about the patient ſhould be alſo directed gradually to admit a greater degree of light every day into his chamber, that he may habituate himſelf to it

as

as quickly as poſſible, and be able to face the full light. For it is a certain fact, confirmed by experience, that nothing contributes more to keep up and increaſe the morbid ſenſibility of the organ of viſion, and conſequently to prolong the diſeaſe, than obliging the patient to lie unneceſſarily in a room completely dark, or with his eyes cloſed and covered with a bandage, a longer time than the nature of the caſe requires.

What has been already delivered, relative to the phænomena and treatment of the violent acute ophthalmia in both its ſtages, will be ſufficient, in my opinion, to ſerve as a certain guide to the young ſurgeon in the management of this diſeaſe, although it ſhould occaſionally be attended with ſome other ſymptom which is not uſual; I cannot, however, omit to mention a particular ſpecies of the violent acute ophthalmia, which is diſtinct from the common in this reſpect, that although the inflammation and ſwelling of the eyelids and conjunctiva come on with great intenſity, like the other caſes of ophthalmia of this ſpecies; yet a ſhort time afterwards it is attended with an extraordinary copious diſcharge of matter from the eyes of a puriform appearance. This diſeaſe, as it is moſt commonly met with in infants, a little after their birth, or attacks adults in conſequence of a ſudden ſuppreſſion of the virulent gonorrhœa, or of a tranſlation of the venereal poi-

ſon in ſome other manner to the eyes, is called in the firſt caſe the puriform ophthalmia of infants, in the ſecond the acute gonorrhœal ophthalmia.

The firſt, as I have ſaid, attacks infants a little after their birth, or thoſe of an early age, while at the breaſt. On the appearance of this alarming diſeaſe, the eye-lids become at once enormouſly ſwollen, and in ſuch a degree that they cannot be ſeparated from each other, much leſs turned outwards. And if this is effected with difficulty, the internal membrane of the palpebræ is found converted into a villous, fungous ſubſtance, ſimilar in ſome degree to the *inteſtinum rectum*, when it is forced out and everted in children from exceſſive ſtraining. The eye-lids, during the crying of the infant, are occaſionally everted of themſelves, and remain in that ſtate until they are returned by force. When the firſt ſhock of the inflammation is over, which is of ſhort duration, a moſt extraordinary quantity of puriform mucus is continually diſcharged from the eyes, which is partly ſecreted by the ciliary glands, but the greater part of it by the villous and fungous ſubſtance into which the internal membrane of the eye-lids and conjunctiva is converted. The fever, at the commencement of the diſeaſe is ſmart, the cries of the infant, the reſtleſſneſs, and tremors of the whole body are inceſſant; and with theſe

ſymptoms

ſymptoms is frequently aſſociated a vomiting or purging of very offenſive yellowiſh matter.

If a prompt and efficacious treatment be not employed to reſtrain this immoderate diſcharge of puriform mucus from the eye-lids and conjunctiva of infants, the cornea in a ſhort time loſes its tranſparency, becomes thickened, and a *ſtaphyloma* is produced. On the firſt appearance of the diſeaſe, therefore, the antiphlogiſtic plan of treatment ſhould be put in practice, by taking away blood from the infant, either by means of the lancet, or by the application of leeches to the temples. Afterwards a bliſter applied to the neck will be found very uſeful, eſpecially if the diſeaſe have been preceded by the retropulſion of any eruption upon the head. It will be proper alſo to purge the infant with ſyrup of ſuccory, conjoined with rhubarb and a little magneſia, directing the nurſe at the ſame time not to overload the child's ſtomach with milk or other food as is uſual, nor to ſwathe the child tightly, and dreſs it in heavy clothes, as is the cuſtom with our ladies, even in the hotteſt weather. And if there be any reaſon to believe that it is in part occaſioned by the nurſe's milk being bad, ſhe ought to be changed, or the diſeaſe, whether depending on the ſtate of her ſtomach or conſtitution corrected.

In the poorer claſs of people this diſeaſe is moſt frequently met with in the ſecond ſtage,

or after the inflammatory period is over, and the copious puriform diſcharge has taken place. If it ſhould happen to be obſerved on its firſt invaſion, beſides the general remedies already mentioned, the eye-lids ſhould be covered with bags of very fine gauze filled with emollient herbs boiled in milk and ſprinkled with camphire; or with bread and milk with ſaffron, or the pulp of roaſted apples ſprinkled with camphor, in order to moderate the violence of the inflammation. As ſoon as the puriform mucus is copiouſly diſcharged from the eyes, which marks the commencement of the ſecond ſtage of the diſeaſe, recourſe muſt be had to aſtringent and corroborant applications, in order to reſtore the veſſels of the eye-lids and conjunctiva to their former vigour, to repreſs the fungous and villous ſtate of the internal membrane of the eye-lids, and thereby check the morbid and immoderate puriform ſecretion, from which it is principally derived. For this purpoſe the moſt uſeful and efficacious application is the introduction of the *aqua camphorata* between the eye-lids and ball of the eye. This water is compoſed of equal parts of the cuprum vitriolatum and armenian bole, and of a fourth part of camphire, well pulverized and mixed together. One ounce of this powder is put into a pint of boiling water; it is then taken from the fire, and after being allowed to ſtand a little until the heavieſt

heavieſt parts ſubſide, is decanted. The camhorated water thus prepared is uſed at firſt, by putting a dram of it into two ounces of cold diſtilled plantain water, and afterwards increaſing the doſe of it according to circumſtances. This collyrium is injected by means of a ſmall ivory ſyringe, the point of which is carefully introduced between the eye-lids at the external angle of the eye. In the worſt caſes it ought to be employed every hour, and in thoſe of leſs magnitude two or three times a day. The eye-lids are afterwards covered with a piece of linen ſpread with the white of an egg beaten and inſpiſſated with alum, and the coheſion of the tarſi is prevented by frequently anointing the edges of the eye-lids with pommade, or oil and wax.

By this method of treatment, in the courſe of two weeks the copious diſcharge of puriform mucus from the eyes generally ceaſes, the eye-lids ſubſide, and the ſurgeon is now able to determine preciſely the ſtate of the eye, and particularly that of the cornea. If there ſhould be any opacity of the latter, the moſt proper remedy for removing it is the Tinctura Thebaïca of the London Pharmacopœia, or if this is not at hand the ophthalmic ointment of Janin.

The violent acute *gonorrhœal* ophthalmia is very ſimilar to the ophthalmia of infants, with reſpect to the violence of the inflammation, the

copious diſcharge of puriform mucus from the eyes which ſhortly ſucceeds it, and the tendency which the diſeaſe has to deſtroy the organ of viſion; but it differs from it eſſentially, with regard to the cauſe by which it is produced.

This diſeaſe is occaſioned in two ways. The one takes place in conſequence, or at leaſt after the ſudden ſuppreſſion of the virulent gonorrhœa; although every ſuppreſſion of gonorrhœa is not conſtantly ſucceeded by the appearance of ſuch ophthalmia. The other is produced by the inſertion of the matter of gonorrhœa, which is inadvertently carried from the genitals to the eyes.

On the ſudden ſuppreſſion of the gonorrhœa, which uſually takes place in conſequence of violent exertions of the whole body, the abuſe of ſpirituous liquors, long expoſure of the whole body to an exceſſive degree of cold, and of acrid and aſtringent injections thrown into the urethra, or other ſimilar cauſes, the ophthalmia appears with great tumefaction of the conjunctiva rather than of the eye-lids; not long after, a copius and continual diſcharge of greeniſh yellow matter iſſues from the eyes, ſimilar to that of the virulent gonorrhœa; the diſeaſe is attended with great feveriſhneſs, reſtleſſneſs, a burning heat, and acute pain in the eyes and head, and an intolerance of light, and in ſome caſes alſo an incipient hypopion appears ſhortly afterwards in the

anterior chamber of the aqueous tumour. In the ſecond caſe the ſame effects are produced when the patient incautiouſly inſerts the virus, by rubbing his eyes with his fingers, or a cloth imbued with the matter of gonorrhœa; with this difference however, that the ſymptoms before enumerated are not ſo violent, and the inflammation ſo exceſſive in this inſtance as the former.

The greater part of ſurgeons are of opinion that in the firſt caſe there is a true metaſtaſis of the matter of gonorrhœa from the urethra to the eyes. But to others this theory has appeared unſatisfactory, and in my opinion with much reaſon. For the puriform ophthalmia does not always ſucceed the ſudden ſuppreſſion of the gonorrhœa; on the contrary, this accident may be conſidered as rare, in proportion to the frequency of caſes in which the diſeaſe is ſuddenly ſuppreſſed or repelled. In the ſecond place the confirmed lues is never ſeen to ſucceed ſuch metaſtaſis of the gonorrhœa to the eyes.* In the third place the gonorrhœal ophthalmia from inoculation with the virus, in which caſe no doubt can be entertained that the venereal poiſon is the cauſe of the diſeaſe in the eyes, has never the ſame powerful and immediate tendency to deſtroy the organ of viſion, as that which is de-

* The ſame thing is remarked by Bell, on gonorrhœa virul. v. 1. chap. 1.

rived

rived from the gonorrhœal metaſtaſis. Perhaps they approach nearer the truth, who regard this phænomenon rather as the effect of a direct conſent between the urethra and eyes, than as a real tranſlation of matter; the internal membrane of the urethra and of the palpebræ, as well as thoſe of the fauces and rectum, being productions of the cutis; and if this effect does not take place in every caſe of ſudden ſuppreſſion of gonorrhœa, it is becauſe all individuals are not endowed with the ſame degree of conſenſual ſenſibility.*

However

* The reaſons which have led Profeſſor Scarpa to doubt the opinion of the particular manner in which the gonorrhœa produces this affection of the eyes, would alſo I think lead one to ſuſpect the exiſtence of ſuch a cauſe altogether; but the following communication, for which I am indebted to Mr. Pearſon, forms a more ſatisfactory argument than any preſumptive evidence that can be offered.

"The venereal ophthalmia, or what Profeſſor Scarpa calls the gonorrhœal ophthalmia, whether aſcribed to metaſtaſis, ſympathy, or the application of the matter of gonorrhœa to the eye, is a diſeaſe which has been deſcribed by a conſiderable number of thoſe writers who have treated profeſſedly on venereal complaints; but whether the greater part of them have given the reſult of their own obſervations, or have merely tranſcribed from the works of their predeceſſors, is a queſtion deſerving ſome conſideration.

"Although I am fully diſpoſed to treat the talents and accuracy of Profeſſor Scarpa with the utmoſt deference, yet I cannot help entertaining ſome doubts of the propriety of aſſigning the gonorrhœa as a cauſe of ophthalmia; ſince, during a pretty extenſive experience of twenty-five years, I have never ſeen one ſingle inſtance of an inflammation of the eyes, which was evidently derived from a gonorrhœa. I am ſufficiently aware of the nature and force of negative evidence in matters depending on teſtimony, not to over-rate it; and certainly, to deny the exiſtence of any atteſted fact, merely becauſe it has not occurred in the courſe of a man's own experience, would be haſty and unjuſtifiable.

However this matter may be, on the appearance of this violent acute ophthalmia, the primary indication is to ſubdue the violence of the inflammation as quickly as poſſible, in order to prevent the deſtruction of the eye or the opacity of the cornea. Conſequently, as I have ſaid before, blood ſhould be taken away abundantly, not only generally but locally, by means of leeches, allowing it to flow in ſufficient quantity; and in caſe of *chemoſis*, the exciſion of the

juſtifiable. In the inſtance now before us, there are two points to be conſidered; the teſtimony of a reſpectable Profeſſor, and the validity of his opinion; for it is not only aſſerted, that thoſe who are infected with a gonorrhœa may be attacked by a violent ophthalmia, but that the gonorrhœa is ſome how or other the cauſe of that ophthalmia. It is with reference to the latter propoſition that I expreſs my doubts, which are founded upon the fact mentioned before, that, of the many thouſand caſes of gonorrhœa which have fallen under my notice, I never could, in any one inſtance, trace ſuch a connexion between the eye and the urethra, as that to which Profeſſor Scarpa alludes.

"The puriform ophthalmia of infants, was, within my recollection, generally regarded as an indication of a venereal taint; and much unneceſſary diſtreſs was often excited in families, and very improper treatment was frequently purſued in conſequence of this erroneous opinion. The nature of that complaint, and the proper method of treating it, are now much better underſtood, and I conceive, that miſtakes in theſe caſes are not very common at this time.

"In that form of the ſecondary ſymptoms of ſyphilis, where the ſkin is the part chiefly affected, a diſeaſe reſembling the ophthalmia tarſi ſometimes appears. It is not commonly attended with much redneſs of the tunica conjunctiva, nor is the ſenſibility of the eye to light remarkably increaſed: yet I have ſeen it, in a few inſtances, in the form of an acute ophthalmia, reſiſting all the common modes of treatment, but yielding immediately to a courſe of mercury.

"The venereal ophthalmia reſembles, in its appearance, thoſe diſeaſes of the tarſi and tunica conjunctiva, which are derived from ſcrofula: and, I believe, there are no ſpecific characters by which diſeaſes of the eye, or eye-lids, produced by the action of the venereal virus, can be diſtinguiſhed from thoſe which are excited by other cauſes."

conjunctiva

conjunctiva ought to be performed; * it will be alſo proper to employ mild laxatives, cooling drinks, emulſions of gum arabic, the warm bath, or at leaſt the pediluvium, and bliſters to the neck. The patient ought to lie in bed with his head raiſed, and his eyes ſhould be frequently fomented with bags of emollient herbs. A ſmall quantity of mallow-water ſhould be injected between the eye-lids and ball of the eye, two or three times a day, by means of a ſmall ivory ſyringe, in order to cleanſe the parts; and the white of a freſh egg, or the mucilage of the ſeeds of the pſyllium, extracted with mallow-water, afterwards introduced with the point of a probe, in order to moderate the heat and pain which the patient ſo much complains of; the edges of the eye-lids ſhould be alſo anointed, eſpecially at night, with the ointment of wax and oil. The ſurgeon ſhould alſo direct that a large poultice of bread and milk with ſaffron be applied upon the perinæum, and renewed every two hours, and that warm oil be injected

* Some pretend, that, in this particular caſe, ſcarifications of the conjunctiva are rather injurious than beneficial. This may be true with regard to ſcarifications, but with reſpect to the exciſion of the conjunctiva, I can aſſert that it is as advantageous in the caſe of *chemoſis* from this ſpecies of ophthalmia as in the others. Some aſſert, that they ought never to be employed until the higheſt degree of the inflammation is mitigated by means of general remedies and emollient applications.

into

into the urethra ſeveral times a day, introducing after each injection a ſimple bougie, with the view of reproducing the gonorrhœal diſcharge.

When the inflammatory ſtage of the diſeaſe is ſubdued, which, as I have ſeveral times obſerved, is indicated by the ceſſation of fever, the burning heat and acute pain in the eyes, and by the diminiſhed tumefaction of the eye-lids, although the fulneſs of the veſſels of the conjunctiva, and the abundant diſcharge of puriform mucus from the eyes continue as at firſt, the ſurgeon, nevertheleſs, laying aſide the uſe of emollient applications, ought to exchange them for a collyrium, conſiſting of one grain of the hydrargyrus muriatus diſſolved in ten ounces of the aqua plantaginis, which ſhould be inſtilled between the eye-lids every two hours; and if this application be too irritating, it ought to be diluted by adding a little mucilage of the ſeeds of the pſyllium: this treatment, however, is proper only in caſes where the exciſion of the conjunctiva has not been requiſite, for when this operation has been executed, the uſe of ſtimulant and aſtringent applications, at leaſt thoſe of the ſtrongeſt kind, ought to be deſiſted from in the ſecond ſtage of this, as well as of every other ſpecies of ophthalmia. The ſame treatment is equally applicable to the gonorrhœal ophthalmia, when it is produced by the inſertion of the matter; except that in the latter, no

applications

applications are neceſſary to cauſe a return of the diſcharge from the urethra, and that the local ſtimulant and aſtringent remedies ſucceed better in this caſe in the ſolid than in the liquid form, as the common mercurial ointment ſmeared upon the edges of the eye-lids, or inſtead of it, the ophthalmic ointment of *Janin.*

Hitherto I have ſpoken of the two ſtages of the benign and violent *acute* ophthalmia, and of the treatment which each of theſe periods requires. But although the ſecond ſtage of the violent acute ophthalmia, or that which conſiſts in the atony of the veſſels of the conjunctiva, and of the palpebræ, is moſt frequently ſpeedily cured by the uſe of aſtringent and corroborant applications; yet caſes are occaſionally met with in practice, in which, from an unfavourable combination of cauſes, the ſecond ſtage of this diſeaſe is protracted to a length of time, until it becomes in the ſtricteſt ſenſe *chronic,* and ſlowly threatens the deſtruction of the organ of viſion.

This unfavourable combination proceeds from three principal ſources; either from an increaſed ſenſibility and irritability remaining in the eye, after the ceſſation of the *acute* ſtage of the ophthalmia; from ſome other diſeaſe in the eye, of which the ophthalmia is only a conſequence; or, laſtly, from ſome particular prediſpoſition of the patient's general conſtitution.

That

That the morbid increaſe of ſenſibility in the eye is the cauſe of the diſeaſe being kept up, is inferred from the diſcharge not only reſiſting the uſe of aſtringent and corroborant applications, which produce ſuch ſpeedy and beneficial effects in caſes of ſimple debility of the veſſels of the conjunctiva and eye-lids, but alſo from the diſeaſe being aggravated by the uſe of theſe remedies, or even by cold water alone, from the patient's conſtantly complaining of a weight and great difficulty in raiſing the upper eye-lid, from the conjunctiva having always a yellow appearance, and from its becoming inſtantly bloodſhot, on the patient's expoſing himſelf to a moiſt and cold air, or to a more vivid light than uſual, or on uſing his eyes a little in reading or writing by candle light. If, in addition to all this, the patient's habit is weak and irritable, if he is ſubject to frequent attacks of hemicrania, to reſtleſſneſs, convulſions, ſpaſmodic tenſion of the hypochondria, or flatulency, under theſe circumſtances it is evident that the chronic ophthalmia is not only kept up by a morbid increaſe of ſenſibility in the organ of viſion, but alſo by a general nervous affection, in which the eyes participate.

With reſpect to the diſeaſes of the eye, from which the chronic ophthalmia is derived; beſides the preſence of an extraneous body between the palpebræ and ball of the eye, which has paſſed unobſerved

unobſerved by the ſurgeon, are reckoned the inverſion of one or more hairs of the eye-lids, or caruncula lachrymalis, a ſmall abſceſs or ulcer in ſome part of the cornea, the protruſion of a portion of the iris, the ulcerous herpes of the edges of the eye-lids, the tinea of the eye-lids, the vitiated ſecretion of the ciliary glands, the morbid enlargement of the cornea or of the whole eye-ball.

As to the diſeaſes of the general conſtitution, the cure of the ſecond ſtage of the violent acute ophthalmia is moſt frequently retarded or prevented, either by a ſcrofulous prediſpoſition, or by an obſtinate variolous metaſtaſis to the eyes, and occaſionally by the inveterate lues venerea. The ſymptoms of theſe are ſo well known, even by ſtudents in ſurgery, that it would be unneceſſary here to repeat them.

In caſes where the diſeaſe is kept up by an exceſs of partial or general ſenſibility, the internal adminiſtration of the bark, conjoined with valerian root, animal food of eaſy digeſtion, gelatinous and farinaceous broths, immerſion in the cold bath, the moderate uſe of wine,* gentle

* Hippocrates ſays: oculorum dolores meri potio, aut balneum, aut fomentum, aut venæſectio, aut medicamentum purgans exhibitum ſolvit. Aph. 31. ſect. vi., aph. 46. ſect. vii. Celſus has given the true ſenſe of this aphoriſm in the following words: ſolet enim evenire nonnunquam, ſive tempeſtatum

tle exercise, and the breathing a pure and temperate air are attended with peculiar advantage. Of the external applications, those which are of a sedative and corroborant nature are very useful, but particularly the aromatic-spirituous vapour. This is employed by putting two ounces of boiling water, and two drams of the volatile aromatic spirit,* into a vessel capable of holding three ounces, then wrapping the vessel in a hot cloth, and conducting the vapour to the eye by means of a small funnel, or by merely bringing the vessel close to the eye. This should be repeated three or four times a day, for at least half an hour, and the eye-lids and eye-brow gently rubbed with the volatile aromatic spirit.

The patient should be cautious, both during the treatment and afterwards, not to fatigue his eyes, and should desist from looking as soon as

pestatum vitio sive corporis, ut pluribus diebus neque dolor, neque inflammatio, et minime pituitæ cursus finiatur. Quod ubi incidit, jamque ipsa vetustate res matura est, ab iis eisdem auxilium petendum est, id est balneo, ac vino. Hæc enim, ut in recentibus malis aliena sunt, quia concitare ea possunt, et accendere: sic in veteribus, quæ nullis aliis auxiliis cesserunt, admodum efficacia esse consueverunt. Lib. VII. cap. vi. art. 8.

* Rec. Essentiæ limonum.
Ol. nucis moschatæ essentialis. an. drachmas duas.
Ol. caryophyllorum aromat. essentialis drachmam dimidiam.
Spiritus salis ammoniaci dulcis libras duas.
Distilla igne leniſſimo.

he feels the ſmalleſt uneaſineſs or ſenſe of heat in them. In reading or writing he ſhould place himſelf in ſuch a manner as to have uniformly the ſame degree of light; as the too ſtrong or too weak a light in theſe caſes is equally injurious. When the patient has once accuſtomed himſelf to the uſe of ſpectacles, he ought never to attempt to read or write, or to look at minute objects without them.

When the chronic ophthalmia is the conſequence of ſome other diſeaſe of the eye, it is evident that the plan of treatment ought to be directed to remove the primary affection.

Of theſe diſeaſes, ſome have been already ſpoken of in the preceding chapters, and the reſt will be detailed hereafter. I ſhall only add here what my obſervation and experience have taught me with reſpect to the treatment of the chronic ophthalmia, when connected with thoſe diſeaſes of the general conſtitution which are moſt frequent. As no ſpecific has been yet diſcovered for the cure of ſcrofula, the treatment of the chronic ophthalmia, when connected with that affection of the general ſyſtem is exceedingly limited, and is rather confined to a knowledge of what aggravates this diſeaſe of the eyes, than of any means adapted to the radical cure of it. The chronic ſcrofulous ophthalmia is exaſperated by whatever debilitates the patient: as the abſtraction of blood, the frequent uſe of ſaline purgatives,

termed

termed antiphlogiſtic, food of difficult digeſtion, as hard, ſalted, ſmoked, or fat meats, raw vegetables, acid fruits; alſo intenſe ſtudy, a ſedentary life, moiſt and marſhy habitations, uncleanlineſs, and frequent variations of temperature. On the contrary the diſeaſe is mitigated, as well as its effects upon the eyes diminiſhed, by the uſe of detergents continued for ſome time, eſpecially rhubarb, the tartarized kali conjoined with the tartarized antimony in ſmall and divided doſes, and if the eyes are not in a truly inflammatory and exceſſively irritable ſtate, the internal uſe of tonics, particularly the cinchona in powder, decoction, or cold infuſion; or the decoction of bark conjoined with the volatile tincture of guaiacum;* or the electuary, conſiſting of bark, cinnaber of antimony, and gum guaiacum.† The antimonial æthiops, in doſes of half a grain a day, afterwards of 2, 3, 4 up to 20, taken for fifty days or more. The ſecond water of quick

* Rec. Decoct. cinchon. unc. 9.
Aq. melis unc. 1.
A third part of this may be taken three times a day, to each doſe of which 4 or 5 drops of the tincture of guaiacum may be added for a child 10 years of age.

† Rec. Cinchon. unc. II.
Cinab. antimon. unc. I.
Gumm. guaiac. unc. II.
Syr. cort. aurant. q. s. f. electuar.
Of which half a teaſpoonful may be taken three times a day, by a child of 10 years old.

lime with chicken broth, in doſes of three ounces each, every morning faſting, and afterwards morning and evening for ſome months; conſtantly obſerving a proper regimen. Beſides theſe, ſea-bathing in the ſummer, and frictions with flannel, morning and evening, are attended with great advantage.

And with reſpect to the external means, the ſcrofulous chronic ophthalmia is exaſperated by emollient and relaxing applications, and by the patient being confined in a room perfectly dark. On the contrary, thoſe which afford relief are ſlightly aſtringent collyria, as lotions conſiſting of a decoction of henbane (hyoſcyamus niger) and the flowers of mallow boiled in milk, with the addition of a few drops of the aqua lithargyri acetati comp.; the Thebaïc Tincture of the *London Pharmacopœia*; ointments compoſed of tutty, armenian bole, or aloes, in ſuch proportion as not to cauſe too much irritation. It is alſo advantageous to take away from the patient's eyes, every kind of covering, except a piece of taffeta ſuſpended from the forehead, and at a diſtance from the eyes; to accuſtom him by inſenſible degrees to bear a moderately ſtrong light, and to allow him to breathe a pure air, and to take exerciſe. In this manner the want of ſpecific remedies is in ſome meaſure compenſated by the diſeaſe being moderated, or at leaſt rendered ſupportable.

I might

I might here adduce a conſiderable number of inſtances of patients confined for ſeveral months in a dark room, and abandoned as incurable, who have quickly recovered under the uſe of theſe remedies; but particularly I think from their having been very gradually accuſtomed to bear a greater degree of light. It is not unworthy of remark that the ſcrofulous diatheſis very frequently diſappears ſpontaneouſly at the age of puberty, when the body is completely developed; and when this fortunate change takes place in thoſe who are affected with the chronic ophthalmia, the diſeaſe, as I have frequently had occaſion to remark, diſappears alſo at the ſame time with the general affection of the ſyſtem.

Not leſs difficult of cure is the chronic ſtage of the acute ophthalmia from a variolous metaſtaſis to the eyes; or that which takes place in conſequence of the ſmall-pox, and not unfrequently ſome weeks after the falling off of the cruſts. This diſeaſe paſſes through a ſevere inflammatory ſtage; and even after the moſt judicious employment of antiphlogiſtic remedies, reſiſts the uſe of corroborant and aſtringent applications, which appear beſt adapted to it.

One of the moſt efficacious remedies in this diſeaſe is a ſeton in the neck,* kept open for ſeveral months. Afterwards, when the ſtomach

* T. Hildanus Centur. I. obſerv. 41. exempl. ii. iii. Journal de Médecin. de Paris, Février 1789.

and primæ viæ have been cleared by the opening powders,* I have found it very uſeful to order the patient, ſuppoſing a child 10 years old, to take morning and evening a pill, conſiſting of one grain of calomel, one of the golden ſulphur of antimony, and four of the powder of cicuta. If the patient is poſſeſſed of exquiſite local and general ſenſibility, beſides this remedy I have found it advantageous to employ a mixture compoſed of three drams of Huxam's antimonial wine, and half a dram of the Thebaïc Tincture; five or ſix drops of which taken in any convenient vehicle twice a day, is a ſufficient doſe for a child of the ſame age; and as an external application the aromatic ſpirituous vapour, in the manner before recommended. Where, however, there is no increaſed local ſenſibility, it may be ſufficient to immerſe the eyes frequently in diſtilled plantain water, with a little ceruſſa acetata, or camphorated ſpirit of wine added to it; to apply the white of an egg with a little ſugar; the Thebaïc Tincture of the *London Pharmacopœia*; or Janin's ophthalmic ointment, obſerving in every other reſpect the rules already laid down, not to keep the patient's

* Rec. Cryſt. tar pulver. unciam dimidiam.
Antimon. tartariz. granum unum.
Miſce, et divide in ſex partes æquales.
One of theſe taken twice a day will be ſufficient for a child of 10 years old.

eyes

eyes covered with bandages, nor to confine him for too long a time in a dark room. The ſame treatment is proper in caſes of chronic ophthalmia, in conſequence of the meaſles.

The venereal chronic ophthalmia is ſtrictly ſpeaking only a ſymptom of the confirmed lues. This diſeaſe is peculiar, in as much as it does not make its appearance with manifeſt ſymptoms of inflammation, but comes on inſidiouſly, ſlowly, and without much uneaſineſs. It afterwards produces a gradual relaxation of the veſſels of the conjunctiva, and internal membrane of the palpebræ, perverts the ſecretion of the ciliary glands; cauſes an ulceration of the edges of the eye-lids by which the hairs fall off, and finally renders the cornea opake. In its higheſt degree, it excites a pruritus in the eyes, which increaſes particularly towards the evening, and during the night, and diminiſhes on the approach of morn, in the ſame manner as almoſt all the other ſecondary ſymptoms of lues venerea; laſtly, it never arrives at the ſtate of *chemoſis*.*

As the inflammatory ſtage of this ſpecies of ophthalmia is trifling, being ſo mild as to paſs unobſerved, it is never neceſſary to employ the antiphlogiſtic plan of treatment. The ſame means, therefore, which are adopted in the cure

* See note, p. 187.

of the lues venerea, may, in general, be employed in this caſe, without the ſmalleſt delay; that is, general mercurial frictions, and at the ſame time the decoction of *mezereon* bark and ſarſaparilla.* A few drops of the collyrium before mentioned, conſiſting of a grain of the hydrargyrus muriàtus diſſolved in 6 or 8 ounces of mallow, or diſtilled plantain water, with the addition of a little mucilage of the ſeeds of pſyllium, may be introduced between the eyelids every two hours, and at night Janin's ophthalmic ointment. Cullen recommended, in this particular caſe, the *unguentum citrinum* of the *Edinburgh Pharmacopœia,* lowered with a double or triple quantity of lard; but I have obſerved that the ſame advantages are obtained from the ointment before mentioned. If much circumſpection in the uſe of mercury be required in any caſe of complicated lues venerea, it is certainly in that of which I am now treating. For if it be adminiſtered in too large doſes the violent ſhock which it gives to the head, never fails to aggravate the ophthalmia, and accelerate the total loſs of ſight. If therefore ſuch an

* Rec. Cort. rad. mezereon drachmam unam et ſemis.
Rad. ſarſaparill. unc. I.
Coque in aq. font. lib. III. ad reman. lib. II.
adde
Lactis vaccini recentis unc. VI.
To be taken in ſmall doſes in the courſe of 24 hours.

effect

effect ſhould take place, the uſe of mercury ought to be ſuſpended for ſome time, the patient ſhould be gently purged, his ſkin ſhould be waſhed, and he ſhould be removed into another apartment.

Laſtly, it is proper to remark, that although the diſeaſe with which the chronic ophthalmia is connected be removed, and no traces of the latter remain upon any part of the conjunctiva which inveſts the eye-ball, nevertheleſs, the edges of the eye-lids very frequently continue marked here and there with ſmall ulcers; which, in order that they may heal perfectly, require to be frequently touched with the argentum nitratum, covering the eſchar immediately afterwards with a little oil.

In ſome particular caſes, and eſpecially in conſequence of the cruſta lactea, theſe ſmall ulcers are ſituated around the root or bulb of the hairs, as in the *tinea capitis*. In order to apply the cauſtic to theſe ulcers accurately, and to draw it with preciſion along the edge of the eye-lid, it is previouſly neceſſary to pluck out the hairs with the greateſt poſſible care one by one, in the ſame manner as in the treatment of the *tinea capitis*. This being done, and the part fomented for ſome days, in order to obviate the effects occaſioned by the irritation of plucking out the hairs, and to promote the ſuppuration of ſome ſmall puſtules which appear upon the

edge of the eye-lids, in conſequence of this operation, the argentum nitratum ſhould be drawn once or twice along the tarſus, and the eſchar covered with a pencil ſtroke of oil.

After the exfoliation of the eſchar, it will be ſufficient to anoint the edge of the eye-lids for ſome nights with the unguent. hydrarg. nitrat. or the ophthalmic ointment of Janin, in order that the whole ſeries of ſmall ulcers which occupied the roots of the hairs may be ſpeedily healed. It is proper to obſerve, that the hairs which are plucked out, are reproduced, but not thoſe which fall off ſpontaneouſly in conſequence of the diſeaſe itſelf.*

* See on this ſubject the memoir of the ſurgeon oculiſt Buzzi, inſerted in No. X. of the Mem. de Medic. of Dr. Giannini. The author conſiders the evulſion of the hairs as the principal object in the treatment of the *tinea* of the eye-lids, and ſays, that the ulcers may be readily healed by introducing three or four grains of the *unguentum ceruſſæ*, between the eye-lids, at bed-time, for five or ſix times, ſo as to penetrate underneath them. If, after ſome months, he adds, there be any appearance of the tinea re-attacking only ſome of the new cilia, the affected hairs ſhould be carefully extirpated, in order to prevent the diſeaſe from being propagated to the others, and occaſioning a complete relapſe.

CHAP.

## CHAP. VIII.

### OF THE NEBULA OF THE CORNEA.

ONE of the evil conſequences of the obſtinate *chronic* ophthalmia is the nebula of the cornea. I have choſen to call the diſeaſe which I am now treating of by this name, in order to diſtinguiſh it accurately from the *albugo* and *leucoma*, or from that denſe ſpot of the cornea which is ſeldom attended with ophthalmia, which is ſometimes almoſt callous, coriaceous, and of the colour of pearl; which affects the ſubſtance of the cornea, and conſiſts in a thickening of the intimate texture of that membrane from the ſtagnation of gluten, or which is formed by a cicatrix in conſequence of an ulcer or wound of the cornea,* attended with loſs of ſubſtance. The nebula, of which I am about to treat, differs from the denſe and dark ſpot forming the *albugo* or *leucoma*, in as much as it is only a re-

* Avicenna, lib. iii. tract. 2. cap. 4. Scias quod albugo in oculo alia eſt ſubtilis, proveniens in ſuperficie apparente, et nominatur *nebula*; et alia eſt groſſa, et nominatur *albugo* abſolute.

cent, ſlight, and ſuperficial opacity * of the cornea, preceded and accompanied by chronic ophthalmia, through which the iris and pupil are ſeen, and which does not therefore entirely take away from the patient the power of ſeeing, but only cauſes the ſurrounding objects to be ſeen as if covered with a veil or cloud.

This diſeaſe is a conſequence, as I have ſaid, of the chronic ophthalmia, which has been long neglected, or improperly treated, in perſons of a lax fibre, and whoſe eyes are weak and eaſily fatigued. The veins of the conjunctiva, which is greatly relaxed in this ſtage of the ophthalmia, yielding every day more and more to the blood which is retarded in them, become gradually more turgid and elevated than natural, aſſume an irregular and knotty appearance, firſt of all in their trunks, then in their branches at the junction of the cornea with the ſclerotic coat, and ultimately in their minute ramifications, which are diſtributed upon the fine lamina of the conjunctiva, covering the external ſurface of the cornea. Whether a ſimilar dilatation takes place alſo in the minute ramifications of the arteries correſponding to theſe veins, it is not an eaſy matter to determine. All that can be affirmed as certain, is, that the return of blood through the veins of the conjunctiva, which

* Plate II. fig. 5. a.

have

have become varicoſe, is greatly retarded by their flaccidity, their knotty and tortuous courſe, as well as by the folds which the relaxed conjunctiva forms in the different motions of the eye-ball.

The minute ramifications of theſe veins upon the cornea are fortunately the laſt to become varicoſe, not only on account of their ſmall diameter in their origin upon the lamina of the conjunctiva which externally covers it, but becauſe the lamina of the conjunctiva, being cloſely united to the cornea, confines and prevents them from being ſo eaſily diſtended by the obſtructed blood, as where they are ſituated upon the white of the eye, and where the conjunctiva is naturally very diſtenſile, and looſely connected to the anterior hemiſphere of the eye-ball. Hence it is, that although what are ſtrictly called the trunks of the veins of the conjunctiva, are, in all caſes of long continued chronic ophthalmia, dilated, varicoſe, and knotty, the minute ramifications of theſe veins upon the fine lamina of the conjunctiva which covers the cornea externally, are not equally ſo; and this only happens in thoſe caſes where the relaxation of the whole conjunctiva, including that portion of it which paſſes over the cornea, and the flaccidity of its veins approaches to the higheſt degree.

How conſiderable the reſiſtance is, which the lamina of the conjunctiva almoſt inſeparably united to the ſurface of the cornea, offers to the preternatural

preternatural dilatation of theſe venous ramifications may be inferred from caſes of violent inflammation, particularly of *chemoſis*, in which, in a very conſiderable number of inſtances, the cornea preſerves its tranſparency, notwithſtanding that the trunks of the veins of the conjunctiva, which are extremely turgid and twiſted together upon the white of the eye, are raiſed in a maſs above the level of the cornea, without the blood forcing the boundary between the cornea and the ſclerotica.

In caſes, however, where not only the trunks and branches of the veins diſtributed upon the white of the eye, but alſo their very minute ramifications upon the cornea have become preternaturally dilated, ſome ſmall reddiſh lines begin to appear upon that part of its ſurface, around which, ſhortly afterwards, a thin, milky, or albuminous humour is diffuſed, which deſtroys its tranſparency in that part. The thin, whitiſh, ſuperficial ſpot which is thereby produced, is preciſely that to which I have given the name of nebula of the cornea. And as this ſometimes takes place in one part only, at other times in ſeveral parts of the circumference of the cornea, conſequently the diſeaſe is in ſome caſes ſolitary, in others it is produced by a number of opake points diſtinct from each other; but which, collectively, darken the cornea either partially or entirely.

The

The ſpeck of the cornea, which is ſometimes formed in the inflammatory ſtage of the violent acute ophthalmia, differs eſſentially from that kind of opacity, which conſtitutes the nebula. In the firſt caſe there is an effuſion of coagulable lymph from the extremities of the arteries into the intimate cavernous texture of the cornea, which tends to thicken and ſubvert its ſtructure; or elſe an inflammatory puſtule is formed in the cornea, which afterwards ſuppurates and produces an ulcer; the nebula, on the contrary, is formed ſlowly upon the external ſurface of the cornea, in the long protracted chronic ſtage of the ophthalmia; is preceded by a varicoſe ſtate of the trunks of the veins diſtributed upon the conjunctiva of the white of the eye, and afterwards by a dilatation of their minute ramifications ſituated upon the ſurface of the cornea; and, laſtly. by an effuſion of tranſparent or albuminous ſerum, into the texture of the fine lamina of the conjunctiva, which inveſts the external ſurface of the cornea; which effuſion never cauſes any external elevation in the form of a puſtule.

In whatever part of the cornea, therefore, the nebula is ſituated, there is always a faſciculus of varicoſe veins * correſponding to it upon the white of the eye, more elevated and knotty

* Plate II. fig. 5. b.

than

than the reſt of the blood veſſels of the ſame order. And if the cornea is cloudy in ſeveral points of its circumference, there are ſo many diſtinct faſciculi of varicoſe veins, projecting upon the white of the eye, which exactly correſpond to the different opake points formed upon it. One would ſay, at firſt ſight, that in each of theſe faſciculi of veins, which are ſo prominent and diſtinct from the others, the blood had forced itſelf a paſſage from the border of the ſclerotic coat upon the cornea. I have a preparation of an eye taken from the body of a man affected with chronic varicoſe ophthalmia and nebula of the cornea, who died from an inflammation of the cheſt. After having injected the head by the arteries and veins, I found that the wax with which the veins of the conjunctiva were completely filled, had not only paſſed freely into the moſt elevated faſciculus of theſe veins, but into its minute ramifications diſtributed upon the ſurface of the cornea, at the part preciſely correſponding to the *nebula*; while in all the reſt of the circumference of the cornea the injection had ſtopped, from its having met with an inſuperable obſtruction. In this eye it is aſtoniſhing to ſee, by the help of a glaſs, the exceedingly fine net-work which the numerous ſmall branches of veins form at the termination of the ſclerotic coat, where they elegantly anaſtomoſe in endleſs variety, without

any

any of them, except thoſe correſponding to the *nebula*, ſurpaſſing the boundary formed by the ſtrong adheſion of the lamina of the conjunctiva at the part where it advances to cover the external ſurface of the cornea.

The *nebula* of the cornea demands from its commencement the moſt effectual method of treatment; for although at firſt it occupies only a ſmall part of the circumference of the cornea, yet when left to itſelf it proceeds towards the centre of it, and the minute branches of the dilated veins, which ramify upon it, augmenting in number and extent, ultimately cauſe the delicate lamina of the conjunctiva to degenerate into a denſe and opake membrane, which greatly obſtructs the viſion, or tends to deſtroy it altogether.

The indication of treatment in this diſeaſe conſiſts in cauſing the varicoſe veſſels of the conjunctiva to contract, ſo as to recover their natural dimenſions; and if this ſhould not ſucceed in deſtroying the communication between the trunks of theſe veſſels, and their minute branches which are diſtributed upon that part of the ſurface of the cornea where the nebula is ſituated, the former of theſe indications may be fulfilled by means of the aſtringent and corroborant applications mentioned in the preceding chapter, particularly the ophthalmic ointment of Janin, provided the diſeaſe be incipient,

and of ſmall extent. But when it has advanced near the centre of the cornea and the relaxation of the conjunctiva and its veſſels is very conſiderable, the moſt ſpeedy and effectual method of treatment which has been hitherto propoſed, is that of extirpating the faſciculus of varicoſe veins* near their origin, that is, cloſe to the nebula of the cornea. By means of this exciſion the blood retarded in the dilated ramifications of the veins upon the ſurface of the cornea, is immediately diſcharged; the varicoſe veſſels are enabled to recover their natural tone and dimenſions; and a ſort of drain is opened at the part where the cornea and ſclerotic coat unite, by which the ſerous or albuminous fluid which is effuſed into the texture of the lamina of the conjunctiva ſpread upon the cornea, or into the cellular tiſſue which connects theſe two membranes together is gradually diſcharged. The rapidity with which the *nebula* of the cornea is diſſipated by means of this operation is truly ſurpriſing, as the dimneſs in that part of the cornea where it is ſituated generally diſappears in the courſe of 24 hours.

The extent of the exciſion in theſe caſes muſt be determined by the expanſion of the nebula upon the cornea, and by the number of faſciculi of varicoſe and knotty veins, more elevated and

* Plate II. fig. 5. b.

diſtinct

diſtinct than the others which proceed from the ſhade or cloud of the cornea, ſo that if the nebula is of moderate extent, and there is only one faſciculus of varicoſe veſſels * correſponding to it, the extirpation of that alone will be ſufficient. If, however, there are ſeveral opake points upon the cornea, and conſequently ſeveral faſciculi of varicoſe veins, forming a circle at different diſtances from each other upon the circumference of the white of the eye, the ſurgeon ought to remove the whole circle of the conjunctiva at the part where the cornea and ſclerotic coat unite, ſince in this manner he will be certain of including the whole of the varicoſe veſſels. On this occaſion it ought to be obſerved, that the mere diviſion of the vaſcular faſciculus does not fulfil the indication of permanently deſtroying the direct communication between the trunks of the veſſels and their minute ramifications upon the cornea. For when an inciſion is made, for inſtance, with the back of a lancet, it is true that both portions of the divided veſſel ſeparate in a contrary direction, and leave an evident ſpace between them; but it is equally certain that a few days afterwards the mouths of theſe veſſels approach and inoſculate, ſo as to recover their former continuity. In order, therefore, to derive the greateſt poſſible advantage from this

* Plate II. fig. 5. b.

operation it is requiſite to remove a ſmall portion of the faſciculus of varicoſe veins, together with an equal portion of the conjunctiva upon which it is ſituated.

In order to perform this operation in the moſt expeditious manner, and with as little inconvenience to the patient as poſſible, ſetting aſide the uſual method of paſſing a needle and thread through the faſciculus of varicoſe veſſels, an operation which is tedious, embarraſſing, and unneceſſary, an able aſſiſtant ſhould hold the patient's head againſt his breaſt, and at the ſame time ſeparate the eye-lids; the ſurgeon then taking hold of the faſciculus of veſſels with a fine pair of forceps,* cloſe to the margin of the cornea, and raiſing it a little, which, from the flaccid ſtate of the conjunctiva, it readily admits of, ſhould remove it by means of the ſmall curved ſciſſars, together with a ſmall portion of the conjunctiva, making the ſection of a ſemilunar figure, and as much as poſſible concentric and cloſe to the circle of the cornea. If, however, the caſe require that more than one faſciculus of veſſels ſhould be removed, and that theſe are placed at ſome diſtance from each other, the ſurgeon ſhould raiſe them expeditiouſly, one after another, and extirpate them in ſucceſſion; or if they are ſituated near to

* Plate III. fig. 8.

each

each other, and occupy the whole circumference of the eye, the exciſion ſhould be carried completely round, following the edge of the cornea, and thus including, together with the conjunctiva, the whole of the varicoſe veſſels.

The divided veſſels ſhould be allowed to bleed freely, and their diſcharge even promoted by applying a ſpunge dipped in warm water upon the eye-lids, with which they ſhould be fomented until the blood ceaſe to flow of itſelf; the eye ſhould then be covered with a cloth and bandage, and ought not to be opened until 24 hours after the operation, when the *nebula* will be found either to have diſappeared entirely, or to be ſo much diminiſhed that the cornea may be ſaid to have recovered its former tranſparency. During the ſucceeding days the patient ſhould be directed to keep his eye cloſed and covered with a piece of ſoft rag and bandage, and to waſh it three or four times a day with a little warm mallow-water. When the inflammation takes place upon the conjunctiva covering the white of the eye, which uſually happens on the ſecond or third day from the operation, it is curious to obſerve, particularly in caſes where the conjunctiva has been divided circularly, that while the greater circumference of the eye-ball becomes red, a ſmall whitiſh circle in the divided part forms a boundary, which prevents the redneſs of the conjunctiva

from extending to the cornea. By the uſe of internal antiphlogiſtic remedies and emollient applications this inflammatory ſtate of the conjunctiva ſubſides in a few days, and that part of the conjunctiva which has been divided appears covered with a layer of mucus. From this period the wound contracts more and more, until it is completely healed. A lotion of mallow-water, uſed at firſt warm, and afterwards cold, is the only local remedy which it is neceſſary to employ in theſe caſes; ſince every ſpecies of collyrium or ſtimulating ointment retards the cure.

When the wound is healed, it will not only be found that the cornea has recovered its tranſparency, but alſo, eſpecially when the exciſion has been carried completely round the eye, that the preternatural flaccidity of the conjunctiva is conſiderably diminiſhed or entirely removed; for after a portion of this membrane has been removed in a direction concentric to the margin of the cornea, the cicatrix by its cloſing draws the conjunctiva forwards, and as it were ſtretches it upon the eye-ball. If, however, the conjunctiva covering the white of the eye ſhould remain afterwards a little more flabby than natural, yellow, and marked here and there with veins which threaten to become varicoſe, aſtringent and corroborant applications may be employed with advantage, and the oph-

thalmic ointment of Janin in the manner recommended in the preceding chapter on the ſubject of *chronic* ophthalmia.

## Case XXVI.

Chlara Bellinzoni, of Belgiojoſo, a robuſt woman, 33 years of age, ſubject from her infancy to cutaneous eruptions, eſpecially in the ſpring, was attacked ſome years ago with a redneſs of the right eye, which extended from the internal angle towards the cornea, and which reſiſted every kind of application. In the courſe of three years, this redneſs, which evidently depended upon a faſciculus of varicoſe veins of the conjunctiva, extended ſo far upon the ſurface of the cornea as ultimately to render it opake for a certain extent, and to occupy even more than two thirds of the pupil. Independently of the patient's indiſtinct viſion, the continual ſenſe of burning in the eye, occaſioned by the diſeaſe, and particularly the fear of loſing the ſight of that eye entirely, induced her to come into the hoſpital.

On the 3d of April 1797, while an aſſiſtant ſeparated the eye-lids, I took hold of the faſciculus of veins which extended in the direction of the internal angle of the eye towards the cornea upon the fine lamina of the conjunctiva which covers it; and collecting the whole of

the faſciculus into one fold, I raiſed it a little, and removed it with the curved ſciſſars in the form of the letter C at the parts where the cornea and ſclerotic coat unite. I allowed the blood to flow, and even encouraged it, by applying a ſoft ſpunge upon the eye-lids, ſqueezed out of warm water; and afterwards covered the whole with a compreſs and bandage.

On the following day, the eye-lids were attacked with an eryſipelas, which extended over the right ſide of the face, accompanied with feveriſhneſs, and a greater degree of heat in the whole body than natural; an affection to which the patient had been frequently ſubject for ſeveral years, but which ſhe had never mentioned before.

I ordered her to obſerve a rigorous diet, and to take a pint of the decoction of the triticum repens, with a grain of the antimonium tartarizatum, in divided doſes, for ſeveral days; and upon the eye-lids I applied bags of emollient herbs. The great tumefaction and tenſion of the eye-lids prevented me from examining the ſtate of the cornea.

The 8th day from the operation the eryſipelas terminated by a deſquammation of the cuticle. The patient was now able to open her right eye freely, and I found, with much ſatisfaction, that the cornea was entirely clear, and that ſhe could diſtinguiſh objects diſtinctly. The divided part

ſuppurated

ſuppurated kindly, no other application being employed, until the conjunctiva was perfectly healed, than a lotion of the aqua malvæ. When the wound was healed, I ordered the patient to uſe the vitriolic collyrium with a little ſpirit of wine ſeveral times a day, by means of which the conjunctiva recovered its former tone, and the cornea its perfect tranſparency. The woman was diſcharged from the hoſpital, perfectly cured, in the beginning of May, which was little more than a month from the time of the operation.

## Case XXVII.

Giovanni Bonfaſani, of S. Lanfranco, 50 years of age, 15 years before the appearance of the diſeaſe of which I am about to ſpeak, was afflicted with a violent *acute* ophthalmia in both eyes; on the diſappearance of which there remained on the lower part of the cornea of the right eye, a ſmall but denſe and irremediable *albugo*. The left eye remained in a good ſtate, but the conjunctiva of the right was always marked in ſeveral parts with ſmall varicoſe veſſels. One cluſter of theſe veſſels, more turgid and elevated than the reſt, was ſituated towards the external angle, and in the courſe of ſome years extended upon the cornea, and produced in that part a *nebula* through which the patient could

could with difficulty diſtinguiſh objects; the other ſmall veſſels of the conjunctiva alſo threatened to become varicoſe, which occaſioned a troubleſome ſenſe of ſmarting, and a perpetual weeping of the eye.

The operation before deſcribed was undertaken the 8th of May, and the blood was encouraged to flow by fomenting the parts with warm water.

The day following I found the nebula almoſt entirely diſſipated, the patient complained of a load at his ſtomach, and a bitter taſte in his mouth; I therefore ordered him to take, in ſmall doſes, a pint and a half of the triticum repens, with a dram of the kali tartarizatum, and a grain of the antimonium tartarizatum, which procured ſome evacuations from the bowels, and relieved him.

The wound was healed in the courſe of 15 days, by merely waſhing the parts frequently with the aqua malvæ. I then ordered the patient to inject the vitriolic collyrium with a little ſpirit of wine ſeveral times a day, which he continued to do for two weeks with great advantage; as the cornea entirely recovered its former tranſparency, except at the part occupied by the *albugo*; the patient, however, ſaw ſufficiently well with this eye, and left the hoſpital 36 days after the operation, during which time

time it is proper to remark, he had only been confined to his bed for the firſt four days.

## Case XXVIII.

Nunciata Raffa, of Genzone, 17 years of age, of a weakly conſtitution, irregular in her menſtruation, and who had been formerly very ſubject to diſcharges from the eyes, was admitted into the hoſpital the 2d of January 1799, on account of a *nebula* upon the cornea of the left eye, which for two months had occaſioned ſome degree of ſmarting, weeping of the eye, and dimneſs of ſight.

The *nebula* occupied about two thirds of the whole cornea, and was evidently connected with a large and very elevated cluſter of varicoſe veſſels, extending from the external angle of the eye to the part upon which it was ſituated. One part of this ſuperficial ſpeck was more denſe, white, and opake than all the reſt. The faſciculus of varicoſe veſſels was elevated with the forceps, and removed by means of the curved ſciſſars, at the part where the cornea unites with the ſclerotic coat, and the part was fomented with warm water to encourage the bleeding.

Twenty-four hours had ſcarcely elapſed, when on removing the firſt dreſſings the nebula was found almoſt entirely diſſipated. The eye was afterwards covered and waſhed frequently in the

the courſe of the day, with tepid mallow-water.

On the 3d day the wound began to ſuppurate, without any bad ſymptom taking place, and in the ſpace of 14 days was healed. The vitriolic collyrium was employed for ſome weeks afterwards, which contributed to perfect the cure by completely reſtoring the tranſparency of the cornea, except in that part of the *nebula* which had been always more denſe and opake than the reſt.

## Case XXIX.

Giacopo Deamici, of Pavia, 52 years of age, by trade a weaver, a thin and deformed man, was affected for ſeveral years with a chronic inflammation of the right eye, which terminated by almoſt entirely taking away the power of ſeeing on that ſide. When he came into the hoſpital, which was on the 2d of December 1794, his eye appeared to be in too hopeleſs a ſtate to permit him to expect any particular benefit. The cornea of the right eye was completely cloudy, and marked in ſeveral places with deeply opake white points, the veſſels of the conjunctiva were relaxed and varicoſe in the whole circumference of the eye, from whence they extended upon the cornea in the form of reddiſh lines.

The

The operation, however, was undertaken, and a portion of the flaccid conjunctiva was removed from the whole circumference of the eye, at the part where the cornea and ſclerotica join. The blood flowed abundantly from the wound. The next day the cornea was found much leſs cloudy than before.

From the 4th of December to the 29th the patient uſed no other external application than a lotion of mallow-water; the eye was defended from the contact of the air and light, by means of a piece of linen cloth, and he remained out of bed, as is uſual with thoſe who are in a ſtate of convaleſcence.

At this period the wound was completely healed, and the cornea had almoſt entirely recovered its tranſparency, except that there remained upon it two denſe white ſpots, neither of which was larger than the point of a needle. The patient uſed the collyrium vitriolicum for ſome time with advantage, and was then diſmiſſed from the hoſpital.

## Case XXX.

Domenico Robola, aged 40, a ſhoemaker of Pavia, exceſſively addicted to wine, was admitted into the hoſpital on the 22d of May 1795, on account of a chronic ophthalmia in both his eyes,

eyes, which had rendered him completely incapable of following his buſineſs.

The diſeaſe began ſix years before, by an itching and redneſs in the eyes, with tumefication and puſtules upon the edges of the eye-lids, and from that indolence which is very common among this claſs of perſons, eſpecially thoſe addicted to drinking, he neglected his diſeaſe until his ſight was almoſt entirely deſtroyed. The conjunctiva on both ſides was very much relaxed, and the blood-veſſels in every part of the circumference of the eye were varicoſe and turgid, and paſſed every where beyond the border of the cornea, evidently extending for ſome way upon the fine lamina of the conjunctiva which covers it. The cornea alſo was completely cloudy; the eye-lids tumefied, and the ciliary glands more enlarged than uſual.

The circular exciſion of the conjunctiva was performed upon both eyes, an operation, which in theſe caſes, is eaſily executed, in as much as the relaxed ſtate of the conjunctiva readily admits of its being laid hold of with the forceps, and elevated in the form of a fold around the whole of the border of the cornea. The blood was encouraged to flow, at firſt by fomentations of warm-water, afterwards by the application of bags of emollient herbs.

The following day I found the cornea of both eyes very much brighter. Two days after, the patient

patient complained of nauſea, and a bitter taſte in his mouth, I therefore ordered him a pint of the decoction of the root of the triticum repens with two drams of the cryſtals of tartar, and one grain of tartarized antimony, in ſmall doſes, which was repeated the two following days with advantage.

The mucous ſuppuration upon the white circle left by the exciſion of the conjunctiva, did not appear until the 8th day after the operation. By employing only a lotion of mallow-water, and keeping the eyes covered by a piece of linen ſuſpended from the forehead, the wound healed in the courſe of 22 days more. I then began the uſe of the ophthalmic ointment of Janin morning and evening, and the camphorated vitriolic collyrium during the day. In two weeks more the cornea of both eyes, but eſpecially that of the left, was ſo much amended that the man could ſee diſtinctly even the ſmalleſt objects, and was now able to return to his former occupation.

## Case XXXI.

A mendicant, 50 years of age, was admitted into the hoſpital on the 12th of April 1796, with the cornea of the right eye completely darkened by a *nebula*, in conſequence of an obſtinate chronic inflammation of the eye, which for two months had been exaſperated by a cutaneous eruption

eruption upon the whole of the right ſide of the face. The whole of the cornea not only appeared ſuperficially cloudy, but preſented, a little above the centre of it, a point whiter and more opake than the reſt. The blood-veſſels of the conjunctiva appeared highly turgid, varicoſe, and relaxed, and were ſeen riſing upon the cornea from every part of the circumference of the white of the eye. The edges of the eye-lids were alſo tumefied, and the eye watery and gummed.

A ſmall portion of the conjunctiva, and its veſſels, were removed around the white of the eye, near the margin of the cornea. A conſiderable quantity of blood flowed, which greatly relieved the patient of the troubleſome ſenſe of burning which he had before complained of. Bags of emollient herbs were applied upon the eye.

The next day the cornea preſented a degree of brightneſs which exceeded all expectation.

Three days after, an abundant diſcharge of mucus took place from the ciliary glands, and that part of the conjunctiva which had been divided, which rendered it neceſſary to waſh the eye frequently with mallow-water. The cornea acquired a greater degree of clearneſs; and, in order to divert more effectually the diſcharge from the eye-lids, I formed a ſeton in the neck.

In

In three weeks more, the circular wound of the conjunctiva was perfectly healed, and I was then able to employ the vitriolic collyrium, and the ophthalmic ointment of Janin; which perfected the cure by removing the morbid ſtate of the ciliary glands, and ſtrengthening the conjunctiva. The white opake ſpot, which was ſituated a little above the centre of the cornea, remained unaltered, but did not greatly obſtruct the ſight.

## CHAP. IX.

### OF THE ALBUGO AND LEUCOMA.

THE *albugo* and *leucoma*, as I have hinted in the preceding chapter, are eſſentially different from the *nebula* of the cornea, in as much as the former are not produced by a ſlow chronic inflammation, attended with a varicoſe ſtate of the veins, and an effuſion of thin, lacteous ſerum into the texture of the fine lamina of the conjunctiva, covering the cornea; but are the effect of the violent acute inflammatory ophthalmia, in conſequence of which a denſe coagulable lymph is poured out from the extremities of the arteries, ſometimes ſuperficially, at other times more deeply into the ſubſtance of the cornea: or elſe the diſeaſe conſiſts in a firm, callous cicatrix of the cornea, produced by an ulcer or wound, accompanied with loſs of ſubſtance. The term albugo more properly belongs to the firſt of theſe, that of leucoma to the latter, eſpecially if the cicatrix or denſe coriaceous ſpot occupy

occupy the whole or the greater part of the cornea.

The recent albugo, produced by the violent acute inflammation of the eye, and left upon the cornea after that affection has been diſſipated by the uſe of general remedies and emollient applications, is of a clear milky colour; but when inveterate it acquires the colour of white cretaceous earth, or of pearl. Of thoſe which are inveterate, ſome appear to have no further dependence on the vaſcular ſyſtem of the cornea; ſince they remain inſulated in the middle of the tranſparent part of that membrane, without occaſioning any ſmarting or ſenſe of uneaſineſs, without having any connection with the veſſels of the conjunctiva, without the reſt of the eyeball appearing in any degree diſeaſed, and without nature attempting any diſſolution of it by abſorption.

The recent albugo, provided the coagulable lymph, extravaſated by the action of the extremities of the inflamed arteries, has not diſorganized the intimate ſtructure of the cornea, is moſt frequently diſſipated by the ſame means which are employed in the treatment of the firſt and ſecond ſtage of the violent acute ophthalmia; that is, in the firſt ſtage, by general and local bleeding, by internal antiphlogiſtic remedies, and emollient applications; and in the ſecond ſtage, by aſtringent applications of a

gently irritating and corroborant nature. For if, after the inflammatory ſtage has terminated, the action of the vaſcular abſorbent ſyſtem of the cornea is excited and reſtored, by means of theſe local remedies, the coagulable lymph ſtagnating in that membrane, and forming the albugo, is abſorbed, and the cornea recovers its former tranſparency. The cornea has a conſiderable affinity to parts of a ligamentous ſtructure. Like ligament it is endowed with little vitality, is not furniſhed with red veſſels, and only appears to be exquiſitely ſenſible when it is inflamed. The inflammation of the cornea, as that of ligamentous parts poſſeſſing little vitality, is ſlowly reſolved, and therefore readily leaves behind it a portion of coagulable lymph, which, during the inflammatory ſtage, is effuſed into its ſubſtance, and produces opacity; this is not neceſſarily removed in any other manner, after the inflammation diſappears, than by abſorption, which can only be promoted by means of ſtimulant applications.

But although this is frequently obtained in the recent albugo, it is not ſo eaſily effected, when, from the long continuance of the diſeaſe, the action of the abſorbent ſyſtem of the cornea, in the affected part, has become torpid; or when the intimate texture of the cornea has been diſorganized by an extravaſation of denſe and tenacious lymph from the extremities of

the arteries. For whether the humour forming the albugo be abſorbed or not, the injury which has been done to the internal ſtructure of the cornea in this part always renders it opake.

The circumſtances, therefore, which are moſt favourable to the cure of the albugo, are, the diſeaſe being recent, without diſorganization of the texture of the cornea, or of the lamina of the conjunctiva covering it, and its taking place in ſubjects of an early age, in whom the lymphatic ſyſtem is moſt active, and in whom its action is more capable of being excited by external ſtimuli. I have ſeen innumerable inſtances in young children, where, in conſequence of the violent *acute* ophthalmia, the ſpecks or albugines, which have remained inſulated in the middle of the tranſparent part of the cornea, after the diſappearance of the ophthalmia, have vaniſhed inſenſibly in the courſe of ſome months, and ſometimes ſpontaneouſly, contrary to all expectation. Heiſter,* Langguth,† and Richter,‡ have made the ſame obſervation. This phænomenon certainly, can only be attributed to the vigorous action of the abſorbent ſyſtem in children, and to the intimate texture of the cornea, in ſuch caſes, not being diſorganized in

* Inſtitut. chirurg. tom. i. cap. 58.

† Diſſert. de oculorum integritate improvidæ puerorum ſtati ſollicite cuſtodienda. § xxi.

‡ Elem. di chirurg. tom. iii. cap. 4.

the part where the effuſion of coagulable lymph has taken place.

Of the local remedies which are calculated to promote abſorption, whether in the recent albugo, where the inflammation has ceaſed, or in that which is inveterate, thoſe from which I have found the greateſt advantage, are, the ſapphirine collyrium,* the ointment conſiſting of tutty, aloes, calomel, and freſh butter,† that of Janin, the gall of the ox, ſheep, pike, and barbel, applied upon the cornea, by means of a ſmall hair pencil, two or three times a day, provided it does not cauſe too much irritation. The ox and ſheep's gall is more ſtimulating than that of fiſh.‡ In ſome caſes where the eyes were ſo irritable as not to bear the action of theſe remedies, I have employed with advantage the oil of walnuts a little rancid, directing

* This is a ſolution of 2 ſcruples of ſal ammoniacus, and 4 grains of ærugo in 8 ounces of aqua calcis, allowed to ſtand for 24 hours, and then filtered.

† Rec. Tuticæ s. p. drachmam I.
Aloes s. p.
Calomelan. an. gr. duo.
Butyr. recent. unc. ſemis. M. f. unguent.

‡ Stimulant applications have been advantageouſly employed in the treatment of the albugo for more than 2500 years, but it was not until the preſent time that the rational principles of this mode of treatment were underſtood. Theſe have been deduced from the correct notions which we have at preſent concerning the action of the ſanguineous and abſorbent ſyſtems in a ſtate of health and diſeaſe.

two

two or three drops of it to be inſtilled into the eye every two hours, and continued for ſome months. In others I have found the juice of the leſſer centaury with honey uſeful.

In general, however unfavourable the caſe may appear, it is proper to perſiſt in the uſe of ſuch local and general remedies as are judged moſt appropriate to the nature of the caſe, and particular ſenſibility of the patient's eye, with the utmoſt diligence, for at leaſt three or four months before it is given over as hopeleſs, and the patient declared incurable.

All the expedients which have been hitherto propoſed for the cure of the inveterate coriaceous albugo, or rather leucoma, and of that which is the conſequence of a cicatrix, and which conſiſt in the ſcraping of the laminæ of the cornea, the perforation of it, or the formation of an artificial ulcer upon a portion of the leucoma, are methods entirely uſeleſs, invented by thoſe who are ignorant of the ſtructure of the parts intereſted in the diſeaſe, and extolled by empiriciſm. For whether the thickneſs of the cornea be diminiſhed by means of ſcraping, or by cutting it with an inſtrument, ſuch methods cannot in any manner reſtore to that membrane the tranſparency which it has loſt; and although, even immediately after the operation, a ſmall degree of light ſhould be admitted into the eye, this advantage would be only momentary; ſince

the ulcer produced by the operation on healing and becoming callous again, would reproduce on the cornea its former ſtate of opacity. The artificial ulceration alſo excited on the leucoma would be uſeleſs, if the diſeaſe merely depended on a ſtagnation of denſe lymph; but the fact ſhows the contrary, and proves that the leucoma, which is not produced by a cicatrix, is not only formed by a denſe humour, but by a diſorganization of the intimate texture of the cornea, in which conſiſts, as I before ſtated, the difference between the *albugo* and the *leucoma*.

CHAP.

## CHAP. X.

### OF THE ULCER OF THE CORNEA.

THE ulcer of the cornea is a very frequent conſequence of the burſting of a ſmall abſceſs, which not unfrequently forms under the fine lamina of the conjunctiva, which covers the cornea, or in the ſubſtance of the cornea itſelf, in caſes of violent acute ophthalmia. At other times the ulcer of the cornea is produced by the contact of corroding, cutting, or pricking ſubſtances, inſinuated into the eyes, as quick lime, particles of glaſs or iron, thorns, or other ſimilar matters, capable of producing a ſolution of continuity.

The ſmall abſceſs of the cornea is accompanied with the ſame ſymptoms as the violent inflammatory ophthalmia, particularly a troubleſome ſenſe of tenſion in the eye, eye-brow, and neck; a burning heat, copious diſcharge of tears, averſion to the light, and an intenſe redneſs of the conjunctiva, eſpecially oppoſite and near the ſeat of the abſceſs.

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This ſmall inflammatory puſtule, in compariſon with thoſe which form upon other parts of the body, is in general very ſlow in burſting after it has ſuppurated. Experience, however, has proved, that it is improper to open it with the point of a lancet or other inſtrument, in order to procure a diſcharge of the matter contained in it, as is practiſed by the generality of ſurgeons; for although this abſceſs ſeem to have arrived at its higheſt degree of maturity, the matter which it contains is ſo tenacious and rooted, as it were, in the ſubſtance of the cornea, that no part of it is diſcharged by the artificial aperture, and the orifice, on the contrary, which is made, rather aggravates the diſeaſe, increaſes the opacity of the cornea, and frequently occaſions the formation of another ſmall abſceſs in the vicinity of the firſt. In ſuch caſes the moſt certain method is to wait until the abſceſs opens externally of itſelf, promoting its rupture by frequently fomenting and waſhing the eye with tepid mallow-water, and by the application of bags of emollient herbs.

The ſpontaneous rupture of the ſmall abſceſs of the cornea, is moſt frequently announced by a ſudden increaſe of all the ſymptoms of ophthalmia, particularly by an intolerable ſenſe of burning in that part of the cornea where the abſceſs previouſly exiſted, which is augmented by the patient's moving the affected eye-ball,

or even the eye-lids. This circumſtance, however, is rendered evident by an excavation which may be obſerved in the part of the cornea where the whitiſh puſtule was ſituated, and which may be ſtill more diſtinctly ſeen by looking at the eye in profile.

The introduction of extraneous bodies into the eye, which have ſimply divided a part of the cornea, or are fixed in it, provided they are immediately withdrawn, do not in general leave an ulcer, the injured part being conſolidated by the firſt intention. Thoſe which abrade or burn the ſurface of this membrane, or which being fixed in it, are not immediately removed, occaſion the acute ophthalmia, afterwards a ſuppuration round the injured part, and laſtly ulceration.

The ulcer of the cornea has this in common with ulcerous ſolutions of continuity of the ſkin, where this integument is fine, tenſe, and poſſeſſed of exquiſite ſenſibility; that on its firſt appearance it aſſumes a livid and cineritious colour; its circumference is red, its margin is tumid and irregular, it is exquiſitely painful, diſcharges an acrid ſerum inſtead of pus, and has a tendency to ſpread and become deeper rapidly. Such is preciſely the character of the ulcer of the cornea, and of thoſe of the nipples, glans penis, lips, of the tip of the tongue, which are called aphthæ, of the tarſi, of the entrance of the auditory canal and of the noſtrils, and other parts,

parts, where the thin tenſe and very ſenſible ſkin is inflected inwards.

The ulcers of this claſs, when left to themſelves, or improperly treated, ſpread rapidly, become deep, and deſtroy the parts which they occupy; if that of the cornea extend ſuperficially it preſently deſtroys the tranſparency of this membrane, and if it ſpread deeply in the form of a ſmall tube, and penetrate into the anterior chamber of the aqueous humour, it occaſions a diſcharge of this fluid, and afterwards a fiſtula of the cornea; if the aperture become larger, beſides the diſcharge of the aqueous humour, it gives riſe to another diſeaſe much more ſerious than the ulceration itſelf, the protruſion of a portion of the iris, the diſcharge of the cryſtalline and vitreous humours, and in ſhort the total deſtruction of the organ of vi on. This moſt ſerious accident is not unfrequently the conſequence of the violent acute gonorrhœal ophthalmia, complicated with atony or defect of vitality in the cornea; in conſequence of which this membrane is no longer ſenſible to the action of the internal and external remedies, which are directed to arreſt the progreſs of the ulceration, which, notwithſtanding the moſt efficacious meaſures extends with the greateſt celerity over the cornea, until it has completely deſtroyed it.

It is therefore of the greateſt importance, as ſoon as an ulcer appears upon the cornea to arreſt

arreſt its progreſs inſtantly, as far as the nature of the diſeaſe permits; or ſo to change the morbid proceſs, that inſtead of tending to the deſtruction of the cornea, it may be diſpoſed to heal; and this ſhould be aimed at the more ſolicitouſly, as the difficulty of converting this morbid proceſs into a healthy one, increaſes in proportion to the extent and depth of the ulcer; and although the healing of a large ulcer ſhould be ſpeedily obtained, the injury which the viſion receives, in conſequence of the extenſive cicatrix which reſults from it, is irreparable.

With regard to the treatment of the ulcer of the cornea, the writers who have taught that no external application can be employed with advantage, for the purpoſe of healing the ulcer, before the acute ophthalmia has been either entirely, or in a great meaſure ſubdued, appear to me to have fallen into a conſiderable error. Experience ſhows preciſely the contrary, and teaches that the application of ſuch local remedies as are capable of quickly removing or mitigating the increaſed morbid ſenſibility of the ulcer, and at the ſame time arreſting its deſtructive progreſs, ſhould be employed in the firſt inſtance, and afterwards thoſe which are proper in the ophthalmia, provided it ſhould not diſappear of itſelf in proportion as the ulcer heals. It is a fact, eſtabliſhed by certain and repeated obſervations, that the ulcer is the cauſe

of

of the ophthalmia, and not the ophthalmia of the ulcer.* It is true, that on the burſting of the abſceſs of the cornea, the ſymptoms of the violent acute ophthalmia are exaſperated; that the redneſs of the conjunctiva is increaſed, as well as the turgeſcency of its veſſels; but it is equally certain that this ariſes only from an augmented determination of blood to it, occaſioned by the increaſed ſenſibility of the ulcerated part of the cornea. On the contrary, as this irritable ſtate of the ulcer is allayed or diminiſhed, the ophthalmia in like manner ſubſides in an equal degree, and on the ulcer becoming clean, and proceeding towards cicatrization, the inflammation is gradually reſolved and diſappears, or at moſt requires only for ſome days the uſe of an aſtringent and corroborant collyrium.

Similar examples come under our daily obſervation in ulcers of other parts beſides the cornea, particularly in the ſmall ſordid ſores before mentioned, which take place upon the internal ſurface of the lips, the tip of the tongue, the nipples, and glans penis, which, on their firſt appearance, as I before ſaid, are covered with an aſh-

* Except the caſe in which the ulcer appears in the higheſt degree of the violent *acute* ophthalmia; where the primary indication muſt be always that of abating the violence of the inflammation as quickly as poſſible, previouſly to the treatment of the ulcer.

coloured

coloured ſurface, excite inflammation in the ſurrounding parts, and occaſion a ſenſe of pricking, and a very troubleſome burning heat; in order to remove the inflammation, we do nothing more than ſpeedily allay the exceſſive irritability of theſe ſores, and change the ulcerative proceſs into that which conduces to their cicatrization; after which the ſurrounding inflammation is immediately diſſipated, without the neceſſity of recurring to other remedies, which are peculiarly directed in the treatment of that diſeaſe.

The remedy, which in all theſe caſes produces ſo ſpeedy and good an effect is the cauſtic. This immediately deſtroys the naked extremities of the nerves in the ulcerated part, and quickly removes the morbid exceſs of ſenſibility; converts the cineritious ſurface of the ulcer and the acrid humour with which it is imbued into a cruſt or eſchar, which in the ſame manner as the epidermis moderates the contact of the ſurrounding parts upon the ulcer, and finally changes its deſtructive proceſs into that of granulation and cicatrization.

For the purpoſe of cauterizing the ulcer of the cornea, the cauſtic which is preferable to every other is the argentum nitratum. This ſhould be cut in the form of a crayon pencil, with the point of which, the eye-lids being well ſeparated, and the upper one fixed by means of

*Pellier's*

*Pellier's elevator*,* the ulcer of the cornea ſhould be touched, and the cauſtic held in contact with it a ſufficient length of time to form an eſchar. If any part of the cauſtic ſhould be diſſolved by the tears, it ought to be waſhed off by dropping a little milk into the eye.

During the application of the cauſtic, the patient complains of very acute pain, but this exceſſive uneaſineſs is amply compenſated by the eaſe which is felt a few minutes afterwards. For the burning heat in the eye ceaſes, as if by a charm, the eye-ball and eye-lids can be moved without difficulty, the diſcharge of tears and turgeſcency of the veſſels of the conjunctiva diminiſh; and the patient is able to ſupport a moderate degree of light and to take reſt.

Theſe advantages continue as long as the eſchar adheres to the ſurface of the ulcer, but as ſoon as the exfoliation takes place, which is on the 2d, 3d, or 4th day, the former ſymptoms of the diſeaſe return, particularly the ſenſe of pricking and burning in the ulcerated part of the cornea, the copious diſcharge of tears, the difficulty of moving the eye-ball and eye-lids, and the intolerance of light; but theſe ſymptoms are always leſs violent than before. On the reappearance of theſe the ſurgeon ſhould apply the cauſtic again without delay,

* Plate III. fig. 1.

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taking care to produce an eſchar equally ſtrong and adherent upon the whole ſurface of the ulcer, which will be ſucceeded by the ſame relief as before. And this ſhould be repeated a third time, if neceſſary; that is, if on the exfoliation of the ſecond eſchar, the exceſſive ſenſibility of the ulcer is not ſufficiently deſtroyed, and its corroding and deſtructive progreſs arreſted. If things go on favourably it will be conſtantly found, that after every exfoliation of the ſlough, the morbid ſenſibility of the eye is diminiſhed and the ulcer leſs extenſive and deep than before, and that, inſtead of its former livid and aſh-coloured appearance, it aſſumes a light fleſh-colour, a certain indication that its deſtructive proceſs is checked, and that it is diſpoſed to heal. In proportion alſo as the ulcer diminiſhes, the turgeſcency of the veſſels of the conjunctiva and the ophthalmia gradually ſubſide.

At this period, when the proceſs of granulation has commenced, the further application of the cauſtic, which has been hitherto ſo beneficial, would be improper, ſince inſtead of accelerating the healing of the ulcer, it would, on the contrary, repreſs the granulations, reproduce the pain, inflammation, and weeping of the eye, and the ulcer would again aſſume a ſloughy and cineritious aſpect, and its edges become irregular and tumefied. This fact has alſo been

noticed by Platner.* *Neceſſe eſt*, ſays he, *ut hoc temperata manu, nec crebrius fiat, ne nova inflammatio, novaque lachryma his acrioribus concitetur.* As ſoon as the eye becomes eaſy and the proceſs of granulation has commenced, whether after the firſt, ſecond, or third cauterization, the ſurgeon ought entirely to deſiſt from the further uſe of any powerful cauſtic, and confine himſelf to the application of the vitriolic collyrium; or that which conſiſts of four grains of the vitriolated zinc, 4 ounces of plantain water, and half an ounce of the mucilage of quince-ſeed, or of pſilium, which ſhould be employed every two hours, and the patient's eye defended from the contact of the air and light by means of a ſoft compreſs and bandage. In caſes, however, where, beſides the ulceration of the cornea, the conjunctiva and its veſſels are in ſome degree relaxed, it is uſeful towards the end of the treatment to introduce Janin's ointment between the eye-ball and eye-lids, proportioning the quantity and ſtrength of the remedy to the particular ſenſibility of the ſubject.

With reſpect to the treatment of thoſe very ſuperficial excoriations of the cornea, in which there appears to be no excavation of the ſubſtance of that membrane, and which in reality conſiſt only in an abraſion of the cuticle, from

* Inſtitutiones chirurg. § 314.

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the lamina of the conjunctiva, which covers the cornea, the uſe of the cauſtic is unneceſſary. It is ſufficient in theſe caſes to employ the vitriolic collyrium with mucilage, or that conſiſting of vitriolated zinc and the white of an egg beaten together, with the addition of roſe or plantain water. The ſymptoms which accompany theſe ſlight excoriations, or rather deprivations of the epidermis, are inconſiderable; and provided the patient take care to inject either of theſe collyria every two or three hours, and to defend his eyes from too vivid a light, and from viciſſitudes of the atmoſphere, they are generally removed in a ſhort time.

Hitherto I have ſpoken of the ulcer of the cornea, and of the beſt method of treating it, in caſes which are moſt frequently met with in practice. Occaſionally, however, whether in conſequence of the violence of the diſeaſe, or of improper treatment, the ulcer, already of conſiderable extent, aſſumes the form of a fungus elevated upon the ſurface of the cornea, which appears to derive its nouriſhment from a ſmall faſciculus of blood veſſels belonging to the conjunctiva, and on this account not unfrequently gives riſe to a very ſerious error, the diſeaſe being miſtaken for a *pterygium*. This diſeaſe, when left to itſelf, or treated with ſlight aſtringents, generally terminates in the deſtruction of the whole eye-ball; it demands, on the contrary,

the ſpeedy uſe of ſome efficacious method capable of deſtroying, in a ſhort time, the whole of the fungus of the cornea, as well as the veſſels which paſs to it from the conjunctiva, and which has alſo the power of arreſting its deſtructive progreſs. This method conſiſts, in the firſt place, in removing with the curved ſciſſars the whole of the fungus cloſe to the ſurface of the cornea, continuing the inciſion at the ſame time upon the conjunctiva, ſo as to include along with it the faſciculus of blood-veſſels, from which it appeared to derive its ſupport. Afterwards, when the blood has been allowed to flow, the argentum nitratum ſhould be freely applied upon all that part of the cornea which had been previouſly occupied by the fungus, ſo as to leave a deep eſchar; on the exfoliation of which, if the whole of the morbid part ſhould not have been deſtroyed, it will be neceſſary to repeat the application of the cauſtic, until the ulcer of the cornea aſſume a healthy and granulating appearance.

In order to execute properly ſo deep a cauterization, it is not ſufficient, in general, that the upper eye-lid ſhould be firmly held by an aſſiſtant, and the lower one depreſſed; but it is alſo requiſite that the operator ſhould keep the upper eye-lid raiſed by means of a ſmall ſpatula introduced between it and the eye-ball, and held in his left hand, while with his right he

applies

applies the cauſtic upon the fungous ſurface of the ulcer, and retains it there a ſufficient length of time to form a firm and deep eſchar.

It muſt be admitted that in very ſevere caſes of this kind, the action of the cauſtic cannot be always calculated with preciſion; and it conſequently happens, that together with the fungus a portion of the whole thickneſs of the cornea is deſtroyed. When this accident occurs it is always followed by a protruſion of the iris through the perforation made in the cornea. This accident, however ſerious it may appear to ſome, is not, however, ſuch as to admit of no relief, as will be ſhown in the chapter on the procidentia of the iris, and provided the ſurgeon is able to obtain a ſolid cicatrix, in the part occupied by the excreſcence, which muſt neceſſarily prevent a return of the fungus, and the total deſtruction of the eye-ball, he will have completely fulfilled the propoſed indication.

## Case XXXII.

Antonio Carovo, of Pavia, a boy, 14 years old, was admitted into the practical ſchool of ſurgery, who ſuffered great pain in his right eye, and was in danger of loſing it, from two ſmall ulcers upon the cornea, which had ſupervened in conſequence of a violent acute ophthalmia.

One of theſe ſmall ulcers occupied the inferior ſegment of the cornea, the other that towards the external angle of the eye; both were ſloughy and of a cineritious colour. The blood-veſſels of the conjunctiva, eſpecially thoſe which correſponded to the ulcerated part of the cornea, were extremely turgid. The boy complained of acute pain in the eye and head, and could not bear even the moſt moderate degree of light.

Having placed him in a ſupine poſture, with his head a little elevated, I directed an aſſiſtant to raiſe the upper eye-lid, by means of *Pellier's elevator*, while with my left hand I depreſſed the lower. This is the only method, eſpecially in children, of fixing the eye-ball ſufficiently for the purpoſe of applying the cauſtic with preciſion to the ulcerated points of the cornea. Then with the argentum nitratum, cut in the form of a crayon, I cauterized both the ulcers ſo as to produce upon them a ſufficiently deep and adherent eſchar, waſhing the eye frequently afterwards with new milk. The patient complained at the moment of very acute pain, but half an hour after he was perfectly eaſy in every reſpect.

On the following day, he was able to ſupport a moderate degree of light, and the blood-veſſels of the conjunctiva appeared very much leſs turgid than before the application of the cauſtic.

Three

Three days after, on the exfoliation of the eſchar, the former pains in the eye returned, but were leſs violent than at firſt. The ulcers were again touched with the cauſtic, which occaſioned leſs uncaſineſs than before. It was repeated four days afterwards.

On the detachment of the laſt eſchar, the ulcers were much diminiſhed, and their ſurface, which was of a pale red colour, was raiſed on a level with the ſurface of the cornea. The vitriolic collyrium, with mucilage of quince-ſeed, was now ſubſtituted for the cauſtic, and inſtilled into the eye every two hours.

In the courſe of ten days more the ulcers were perfectly healed, and the ophthalmia entirely diſſipated. And to render the cure more perfect, I ordered the patient to continue the collyrium for a month longer, and to introduce between the eye-lids, at bed-time, a ſmall quantity of the ophthalmic ointment of Janin.

## Case XXXIII.

A beggar boy, 11 years old, of a weak conſtitution, and occaſionally ſubject to periodical fever, ſome years after the ſmall pox, which had left a morbid ſenſibility in the left eye, was ſeized with a violent acute inflammation of it; in conſequence of which a ſmall abſceſs formed between the laminæ of the cornea,

which burſt ſpontaneouſly, and left a ſmall ſloughy aſh-coloured ulcer, of an oval figure, which extended from the margin of the cornea, correſponding to the internal angle of the eye, almoſt as far as the part oppoſite the centre of the pupil. The boy complained very much, eſpecially on being expoſed to the light, and there was a copious weeping of the eye. The veſſels of the conjunctiva alſo were exceedingly turgid, eſpecially towards the internal angle of the eye. The argentum nitratum was applied to the ulcer, and its action limited, by repeatedly waſhing the parts with milk, and applying upon them bags of emollient herbs. The very acute pain produced by the cauſtic continued about half an hour; it then ceaſed, and the patient paſſed the reſt of the day comfortably, and ſlept ſoundly the whole of the following night. The next day he opened his eye freely, and ſupported a moderate degree of light without uneaſineſs. The ophthalmia and weeping of the eye were greatly diminiſhed.

On the ſeparation of the eſchar, the acute pain in the eye, the averſion to light, and the diſcharge of tears returned. The cauſtic was therefore repeated, and was attended with the ſame advantage as before.

Three days afterwards, on the ſeparation of the ſecond eſchar, I found the ulcer very much contracted, attended with little pain, and the bottom

bottom of it preſenting a pale red, and granulating appearance. I ordered the collyrium vitriolicum, with mucilage, to be dropped into the eye every two hours, and the part to be conſtantly defended from the contact of the air and light, by means of a compreſs and bandage, and in a few days the ſore healed. The blood-veſſels of the conjunctiva, which were a little varicoſe, ſtill kept up ſome degree of redneſs upon the white of the eye, and the boy was attacked with a tertian fever, attended with violent ſhiverings. I gave him the cinchona, with a few drops of the tincture of opium; the uſe of which was continued in ſmall doſes for a conſiderable time after the fever was ſubdued. Beſides the vitriolic collyrium, the ointment of Janin was employed, which contributed materially to invigorate the veſſels of the conjunctiva, and to remove entirely the chronic redneſs of the white of the eye. The cicatrix, though certainly very near the pupil, did not cover it, and conſequently did not prevent the child from ſeeing with the left eye.

## Case XXXIV.

Giuſeppe Reale, of S. Leonardo, a ſtrong plethoric countryman, 22 years of age, was attacked with a violent acute ophthalmia in both his eyes, attended with fever and violent pain. On

On the 7th day he came to the ſchool of ſurgery, after having been once bled. His right eye was greatly inflamed, and there was an ulcer upon the inferior margin of the cornea, but not very deep; the left, which was equally inflamed, had an ulcer upon the external margin of the cornea, not larger in extent than a millet-ſeed, but excavated and deep. The patient's pulſe was hard and vibrating, the fever continual, and he had an inclination to vomit. I immediately ordered 18 ounces of blood to be drawn from the arm, and at night 10 ounces more from the foot, and directed that bags of emollient herbs ſhould be applied upon the eyes. He had a leſs uneaſy night than the preceding, his pulſe became ſoft and undulating, and his ſkin moiſt. As he complained of nauſea I ordered him an emetic, which procured a copious and ſalutary evacuation of bilious matter; ſo that on the 4th day from the patient's entrance into the hoſpital, the inflammatory ſtage of the ophthalmia might be conſidered as having terminated. Both the ulcers were now touched with the argentum nitratum. In order to keep the patient's bowels open, and to encourage a ſtate of perſpiration, I ordered him, the following day, a pint of the decoction of the triticum repens, with two drams of the cryſtals of tartar, and a grain of tartarized antimony, to be taken in divided doſes, and continued for ſeveral days. The application

tion of the cautery allayed the violence of the pain in the eyes. When the eſchars came away the ulcers were again touched with the argentum nitratum, and this was repeated three times in the courſe of eight days; by means of which the ophthalmia diminiſhed, the granulating ſurface of the ulcer of the left eye aroſe on a level with the ſurface of the cornea, and that of the right eye was almoſt entirely healed. The collyrium vitriolicum, with the mucilage of pſillium dropped into the eyes every two hours, was afterwards ſufficient to complete the cure; and as the cicatrices of the corneæ did not extend oppoſite the pupil, they did not obſtruct the viſion.

## Case XXXV.

Celeſtina Pacchiarotti, a child, two years and a half old, was brought by her mother to the ſchool of ſurgery, in order that I might examine the right eye, which after a recent and ſevere attack of the ſmall-pox had remained ſwollen, red, painful, and watery. I found upon the cornea, on the ſide next the noſe, a ſmall ulcer of a cineritious colour of the ſize of a millet-ſeed, and on the oppoſite ſide of the cornea, that is, towards the temples, a ſmall incipient abſceſs.

I ordered that the ulcer ſhould be immediately touched with the argentum nitratum.

The

The mother was charged to drop into the eye a little milk, and to bring the child every morning at the hour of dreſſing.

After the application of the cauſtic, the child remained eaſy for three days, but when the eſchar ſeparated ſhe again ſhowed ſigns of great pain and heat in the eye. The ulcer was again touched with the argentum nitratum, and on the detachment of the ſecond eſchar, which was four days after, I found it ſo ſmall and ſuperficial that it might be conſidered as on the point of cloſing. In four days more indeed, by merely dropping into the eye the vitriolic collyrium, with mucilage, it was completely healed.

The ſmall abſceſs which occupied the margin of the cornea on the ſide of the temples, and which had hitherto remained ſtationary, increaſed and cauſed a return of the pain and tenſion in the eye; it afterwards burſt and degenerated into an ulcer ſimilar to the firſt. I inſtantly applied the cauſtic to this ſore alſo, as I had done to the preceding. A bliſter was alſo put upon the neck, and the child was repeatedly purged with the ſyrup of ſuccory and rhubarb. It was neceſſary to touch the ulcer a ſecond time with argentum nitratum before it appeared diſpoſed to produce healthy granulations, and to contract; which effects were obtained in ſix weeks from the exfoliation of the ſecond eſchar. The cure was completed by the

regular

regular uſe of the vitriolic collyrium and mucilage for two weeks; which not only contributed in a great degree to heal the ſecond ulcer, but alſo to ſtrengthen the veſſels of the conjunctiva, and to clear the whole of the white of the eye.

## Case XXXVI.

Giuſeppe Barbieri, of Pavia, aged 23, a ſaddler by trade, of a ſlender conſtitution, and occaſionally ſubject to intermittent fever, was attacked, towards the end of September 1796, with an eryſipelas on the right ſide of the face, which cauſed a conſiderable tumefaction of the eye-lids and conjunctiva of the right eye. This affection diſappeared in ten days, by obſerving a proper diet, and by applying upon the face, as is the practice among the common people, the inner bark of the elder.

A month after, on being expoſed to a ſharp and cold wind, the right eye became very much inflamed. He repeated the ſame remedies as before, but finding however that the pain, heat, watchfulneſs, diſcharge of tears, fever, and intolerance of light increaſed, he came to the hoſpital. I found upon the lateral external part of the right eye, an ulcer, a line in length, and a quarter of a line in breadth, but very deep.

As

As I had not at that moment an opportunity of allowing him a bed in the hoſpital, I touched the ulcer with the cauſtic and gave him proper inſtructions for proſecuting the treatment at home. He did not return for advice till ten days after, conſequently long after the exfoliation of the eſchar, and I found him in a worſe ſtate than before. A bed was allotted to him, and I began by ordering him a bread and milk poultice to be applied upon the eye-lids, for the purpoſe of diminiſhing the exceſſive tenſion of the eye and ſurrounding parts, and to be repeatedly purged with the *opening* powders, compoſed of cryſtals of tartar and tartarized antimony.

In leſs than three days the tumefaction of the eye-lids ſubſided, and I immediately touched the ulcer with the argentum nitratum, and produced a deep eſchar. It was neceſſary to apply the cauſtic three times more in the courſe of eleven days, before the ulcer loſt its cineritious appearance, and was diſpoſed to granulate and heal. By this treatment the pain in the eye, and the chronic ophthalmia, from relaxation of the veſſels of the conjunctiva, gradually diminiſhed, in proportion as the ulcer contracted.

When the bottom of the wound was nearly on a level with the ſurface of the cornea, I ordered

ordered the patient to inſtil the vitriolic collyrium with mucilage of quince-ſeed every two hours, by means of which the ulcer was perfectly healed, and the patient regained the entire uſe of his eye.

CHAP.

## CHAP. XI.

### OF THE PTERYGIUM.

THE term *pterygium* is applied by ſurgeons to that ſmall preternatural membrane of a reddiſh aſh-colour, and of a triangular figure,* which ariſes in general from the internal angle of the eye, near the caruncula lachrymalis, and extends by little and little upon the cornea, attended with conſiderable injury to the ſight.

Although this ſmall membrane moſt frequently originates from the internal angle of the eye, it is ſometimes ſeen to proceed alſo from the external angle,† and in ſome caſes from the ſuperior or inferior hemiſphere of the eye-ball. From whatever part it may ariſe, however, it is a conſtant fact that this membrane is always formed of a triangular ſhape, the baſe of which is ſituated upon the white of the eye, and the apex upon the cornea, ſometimes at a greater ſometimes at a ſmaller diſtance from the centre of the cornea and of the pupil. In ſome caſes,

* Plate II. fig. 3. a.

† Plate II. fig. 3. b.

though

though rarely, two or three pterygia of different ſizes are met with upon the ſame eye, placed at different diſtances from each other around the circumference of the ball, with their apices directed to the centre of the cornea, where, if unfortunately they unite together, they cover the whole of its ſurface with a denſe veil, and produce a complete loſs of ſight. This complicated caſe appears to me to be preciſely what the ancient phyſicians have called the *pannus* of the eye.

The *chronic varicoſe* ophthalmia, with relaxation and thickening of the conjunctiva, the *nebula* of the cornea, and the pterygium, differ from each other only in as much as they are but greater or leſs degrees of the ſame diſeaſe. For all the three conſiſt in a varicoſe, relaxed, and atonic ſtate of a certain portion of the conjunctiva. In the *chronic varicoſe* ophthalmia, the preternatural fulneſs and nodoſity of the veins, as well as the flaccidity and thickening of the conjunctiva, are confined to the white of the eye; in the *nebula* of the cornea, a certain order of varicoſe veins is dilated and knotty for a limited extent, upon the fine lamina of the conjunctiva, which covers the external ſurface of the cornea; and in the *pterygium*, in addition to the varicoſe ſtate of the veſſels, which are extended over a certain part of the cornea, there is a preternatural thicken-

ing of the thin lamina of the conjunctiva which covers it, upon which theſe ſmall varicoſe veins are ſituated. Hence it ariſes that the *pterygium* appears at firſt to be a new membrane formed upon the cornea, while it is nothing more than the fine lamina of the conjunctiva, forming its natural external covering, which in conſequence of the chronic ophthalmia has degenerated from a tranſparent into a thick and opake tunic interwoven with varicoſe veſſels. In caſes of pterygium therefore no new production is formed upon the eye, the diſeaſe only conſiſting in a perverſion of ſome one of the fine and tranſparent membranes which cover it. And a convincing proof of it, which I ſhall afterwards detail, is this, that the *incipient pterygium* may be cured in the ſame manner as the nebula of the cornea; that is, not by detaching it from the ſurface of the cornea, but merely by extirpating it at the part where the cornea and ſclerotica unite, in the manner employed for deſtroying the communication between the minute ramifications of the varicoſe veins of the conjunctiva and their trunks, from the former of which the *nebula* is produced and nouriſhed.

The pterygium, as I have ſaid on the ſubject of the nebula of the cornea, would be a diſeaſe no leſs frequent than the *varicoſe chronic* ophthalmia, which ſo often occupies the white of the eye, if the fine and tranſparent lamina of

the

the conjunctiva, which inveſts the cornea externally, were not of a texture far more denſe and compact than the reſt of that membrane which correſponds to the white of the eye, and if the ſmall veſſels, which are diſtributed upon it, were not very fine, tenſe, and not ſo eaſily diſtended as their trunks, which are ſituated upon the reſt of the conjunctiva, covering the anterior hemiſphere of the eye-ball. Hence it is, that conſidering the frequent occurrence of the chronic varicoſe ophthalmia, the pterygium is rather an unuſual diſeaſe. If, however, the very delicate veſſels of the lamina of the conjunctiva covering the cornea, once yield to the impulſe of the fluid propelled into them, and become varicoſe, it neceſſarily follows that the cellular membrane, which envelopes theſe veſſels becoming gradually tumefied, the fine and tranſparent lamina, ſituated upon the cornea, is converted into a pulpy and reddiſh coloured tunic, which is preciſely that of the *pterygium*.

That the *pterygium* is, in reality, nothing more than the natural expanſion of the thin tranſparent lamina of the conjunctiva converted, for a certain extent upon the cornea, into a pulpy, flaccid, varicoſe membrane, is rendered probable from the folds which the pterygium and the conjunctiva correſponding to it form, whenever the eye-ball is rolled on the ſide on which the

diſeaſe is ſituated; and, on the contrary, from the tenſion which takes place in the *pterygium* and conjunctiva, when the ball of the eye is turned in the contrary direction. And this is ſtill further confirmed, from obſerving, that in the former poſition of the eye-ball the *pterygium* may be as eaſily laid hold of by the forceps, and raiſed in the form of a fold, as the part of the conjunctiva correſponding to it, which is equally relaxed, varicoſe, and red.

In the dead bodies of thoſe who have had this diſeaſe, when the flaccid and thickened part of the conjunctiva of the white of the eye, correſponding to the part of the cornea, which is rendered opake by the *pterygium*, has been carefully ſeparated and removed, I have conſtantly found that the pterygium * was as eaſily detached from the cornea, as from the white of the eye, leaving the former in the part which it occupied denuded, and evidently deprived of the covering which it naturally receives from the fine tranſparent lamina of the conjunctiva. Nor have I been able in any inſtance to diveſt the cornea of its natural covering, beyond the ſeat of the diſeaſe. When beſides there are ſeveral pterygia upon the ſame eye, at different diſtances from each other, there are ſo many flaccid, varicoſe, pulpy portions of the

* Plate II. fig. 4. a. b.

conjunctiva

conjunctiva met with forming the baſe of each of them; while the reſt of that membrane, covering the white of the eye, remains cloſely united to the eye-ball, without there being any appearance of varicoſe veſſels upon the anterior hemiſphere of the eye, except in thoſe parts where the relaxation of the conjunctiva, and the nodoſity of the veſſels have, as it were, thrown to a diſtance the roots and rudiments of the pterygium.

It is worthy of obſervation, that whether the pterygium be great or ſmall, and in whatever part of the circumference of the eye-ball it is formed, it conſtantly retains its triangular figure; having its baſe ſituated upon the white of the eye, and its apex upon the cornea. The conſtancy of this fact ought to be referred, in my opinion, to the adheſion of the lamina of the conjunctiva becoming ſtronger, in proportion as it advances from the circumference towards the centre of the cornea. For in conſequence of ſuch ſtructure and different degree of coheſion which actually exiſts in the ſound eye, it ſhould neceſſarily follow, that in the firſt place the progreſs of the pterygium ought to be in every caſe of ſuch diſeaſe much ſlower upon the cornea than upon the white of the eye; ſecondly, that from the greater reſiſtance which the pterygium always meets with, in proportion as it extends towards the centre of the cornea, it

ought, from mechanical neceſſity, to aſſume a triangular form, the baſe of which correſponds to the white of the eye, the apex to the centre of the cornea. Foreſtus * has particularly remarked the conſtancy of this phænomenon, and ſpeaking of the *pterygium*, he adds, *non cooperit oculum niſi in forma ſagittæ.*

From this appearance and figure, which the diſeaſe invariably aſſumes, ariſes one of its principal diagnoſtic characters, by which the true *pterygium* is diſtinguiſhed from the ſpurious, or from any other ſoft, fungous, reddiſh coloured excreſcence, which externally darkens the cornea. For excreſcences are ſometimes formed upon the cornea, which, from their colour and ſoft membranous conſiſtence, very much reſemble the pterygium, although they are very different from it, being formed in reality by the ſubſtance of the cornea itſelf, which has degenerated into a ſoft and fungous ſubſtance. But theſe ſpecies of falſe pellicles independently of their being almoſt always more elevated upon the cornea than the *pterygium*, have conſtantly an irregular and tuberculated figure, and never repreſent a triangle with the apex directed from the margin towards the centre of the cornea.

Another diſtinguiſhing character of the pterygium is, the facility with which the whole of

* Oper. Med. lib. ii. Obſerv. 6.

it

it may be collected and raiſed in a fold upon the cornea by means of the forceps; while every other ſpecies of excreſcence attached to this membrane remains firmly adherent to it, and does not admit of being folded in any manner, or elevated from the ſurface of the cornea. This peculiarity is of the greateſt importance in the treatment of this diſeaſe, ſince the true and genuine pterygium may be cured in the ſimpleſt manner; while, as I have ſtated at the end of the preceding chapter, the fungous excreſcence of the cornea cannot be radically extirpated and perfectly healed without the greateſt difficulty. Plenk * remarks with much propriety: *pterygia, quæ filamentis ſolummodo adhærent, facile, abſcinduntur, difficillimè quæ ubique accreta ſunt corneæ, ac in plicam elevari non poſſiunt.* But if this excreſcence, although of a triangular figure, and conſtituting the true pterygium, adheres firmly to the cornea, and is of a deep red colour, reſembling lac, bleeds readily on being touched, and occaſions lancinating pains, which ſhoot through the eye and temples, the diſeaſe threatens to become of a malignant cancerous nature, or is ſo already; and therefore ought

* Ce morb. ocul. page 97.

Avicenna, lib. iii. fen. 3. cap. 23, ſays; duræ, ſpeaking of the cornea, denudatio quando non eſt facilis, perducit ad nocumentum.

only to be treated by palliative means, or by the extirpation of the whole eye.

The cure of the true benign pterygium, or that which is of a triangular figure, of a cineritious or pale red colour, unattended with pain, and which may be raiſed in the form of a fold, is obtained by removing this ſmall triangular opake membrane in an exact manner from the ſurface of the cornea. But ſince, from what has been ſtated, the pterygium conſiſts in an alteration of the tranſparent lamina of the conjunctiva into a denſe and opake tunic, in conſequence of the varicoſe chronic ophthalmia, it neceſſarily follows that this diſeaſe cannot be removed by any means of art, without that part of the cornea which it occupies being deprived of its natural exterior integument. And as this deprivation of the natural covering of the cornea renders a cicatrix in that part inevitable, it follows alſo, that it is impoſſible to cure this diſeaſe by an operation, without the cornea remaining more or leſs dark in the part which was occupied by the pterygium. The young ſurgeon, therefore, for whom theſe obſervations are intended, ſhould not ſuffer himſelf to be impoſed upon by the ſpecious relations of thoſe who aſſert that they have removed pterygia by the knife, and completely reſtored the cornea to its original natural tranſparency. The cornea certainly appears leſs opake in that part than before;

before ; but it always remains dark, and clouded by an indelible, though ſuperficial cicatrix. The advantage derived from the operation is, however, always conſiderable, in as much as it prevents the progreſs of the diſeaſe, or the further increaſe of the varicoſe and thickened ſtate of the thin pellucid lamina of the conjunctiva covering the cornea, and at the ſame time removes the local cauſe of irritation and afflux to the eye, and thereby prevents the complete opacity of the cornea. If, therefore, it has happened that after the exciſion of an extenſive pterygium the patient has recovered his ſight, it ought to be underſtood ſome degree of ſight, or in that proportion which there is between a denſe membrane, which entirely obſtructs the paſſage of the light, and a thin ſuperficial cicatrix, which does not intercept it altogether.

All that I am able to aſſert, from repeated obſervation, as certain and invariable, is, that after the exciſion of the pterygium, the ſuperficial and indelible ſpeck which remains upon the cornea is always leſs extenſive than the ſpace which was previouſly occupied by the pterygium. Whether this ariſe in conſequence of the fine tranſparent lamina of the conjunctiva at the circumference of the pterygium, not being entirely diſorganized, but only filled with a thick humour, and merely affected with *nebula*, which, by means of the exciſion, unloads itſelf

of

of the tenacious humour which it contained, and conſequently recovers its former tranſparency; or becauſe the cicatrix in the part from which the *pterygium* has been extirpated, as generally takes place in all wounds, becomes actually leſs extenſive than the parts which have been removed; certain it is, that this phænomenon is invariable, and that in a great number of caſes in which I have performed the operation, of which ſome extended two lines, others two lines and a half upon the cornea towards its centre, in all, after the cure was complete, the cicatrix and offuſcation of the cornea were leſs, and did not exceed one line and a half, or little more, in caſes where the pterygium was two lines in extent.

The exciſion of the pterygium is an operation eaſily executed. It is not neceſſary for ſuch purpoſe to have recourſe to the curved needle, threaded with ſilk, with which the greater part of ſurgeons direct the ſmall membrane to be pierced, for the purpoſe of forming a nooſe, by which this pellicle may be raiſed, and then divided at its baſe. This method is inconvenient, not only becauſe it greatly prolongs the operation, but becauſe the blood which flows from the perforations prevents the extent of the parts which are intended to be removed from being ſeen with the preciſion which is requiſite.

The

The forceps * and very ſharp ſciſſars † are quite ſufficient for the purpoſe.

The pterygium is in general removed by beginning the exciſion upon the cornea, and continuing it upon the white of the eye, as far as the whole extent of its baſe in the conjunctiva, ſo that when the diſeaſe proceeds from the internal angle of the eye, the inciſion is prolonged by the generality of ſurgeons as far as the caruncle. The diſadvantage attending this practice is, in the firſt place, that the white of the eye is denuded to too great an extent; ſecondly, that in conſequence of the great quantity of ſubſtance of the conjunctiva, which is removed in the baſe of the pterygium, and the direction in which it is executed, the cicatrix which takes place upon the white of the eye, forms an elevated ridge, which, like a ſmall cord, confines the ball of the eye to the caruncula lachrymalis, and prevents the freedom of its motions, particularly in the direction from the internal towards the external angle. In order to avoid this inconvenience in the treatment of pterygia, which have a very extenſive baſe upon the white of the eye, I have found it convenient to divide them, from the apex only, as far as the part where the cornea and ſclerotica unite; and then to ſeparate them at their baſe

* Plate III. fig. 8.

† Plate III. fig. 3.

by

by a ſemicircular inciſion,* including about a line in breadth of the ſubſtance of the conjunctiva, in a direction concentric to the margin of the cornea. By operating in this manner I have found that the after-treatment is much ſhorter than when it is executed after the common method, that the cicatrix does not form a ridge or frænum, and that the conjunctiva being ſtretched circularly and equably upon the white of the eye by the cicatrix, loſes that relaxation and varicoſe ſtate of its veſſels which formed the baſe of the *pterygium*. This nicety is not, however, neceſſary where the *pterygium* is ſmall, and does not extend much upon the white of the eye.

The patient being ſeated for this purpoſe, an aſſiſtant behind him ſhould raiſe the upper eyelid, with the middle and forefinger of one hand, and depreſs the lower one with thoſe of the other. The operator, ſuppoſing the affected eye is the right, ſhould place himſelf before the patient, either ſitting or ſtanding, as ſhall be moſt agreeable to him; then deſiring the patient to turn his eye a little from the ſide correſponding to the baſe of the pterygium, with the forceps held in his left hand a little open, he ſhould take hold of the pterygium at about a line from its apex, and preſs it in the form of a fold, which

* Plate III. fig. 3. a.

he

he ſhould then raiſe and draw gently upwards towards him, until he ſhall perceive a ſmall crackling, indicating the detachment of the pterygium from the fine cellular membrane which connects it to the ſubjacent cornea. Then, with the ſciſſars in his right hand, he ſhould divide the fold as cloſe to the cornea as poſſible, in the direction from the apex to the baſe; and having carried the inciſion as far as the part where the cornea and ſclerotica unite, ſhould raiſe the fold again ſtill higher, and with one ſtroke of the ſciſſars, as concentric and cloſe to the margin of the cornea as poſſible, remove the pterygium, together with a portion of the relaxed conjunctiva, which formed the baſe of it. This ſecond inciſion ſhould have the figure of a creſcent,* the points of which ought to extend a few lines beyond the relaxed portion of the conjunctiva, following the curve of the eyeball.

After the operation the blood ſhould be encouraged to flow, by waſhing the parts with warm water, and the eye covered by a compreſs, either dry, or moiſtened with the aqua litharg. acetat. comp. and ſupported by a bandage, which ſhould not compreſs the parts too much.

If no remarkable ſymptoms ſhould ariſe, as pain, tenſion of the eye, and conſiderable tume-

* Plate II. fig. 3.

faction

faction of the eye-lids, it will be ſufficient that the eye-ball and internal ſurface of the eye-lids be waſhed three or four times a day, with tepid mallow-water, and the parts carefully defended from the contact of the air, without being compreſſed. If, however, ſuch ſymptoms ſhould occur, it will be neceſſary to have recourſe to the antiphlogiſtic regimen, the application of bags of emollient herbs to the eye, and the introduction between the eye-lids of the white of egg, or mucilage of the ſeeds of the *pſyllium* extracted with mallow-water.

On the 5th or 6th day, in general, from the operation, the ſurface of the wound appears of a yellow colour, and covered with mucus; a form of ſuppuration peculiar to membranes in general, and the eye-ball in particular, while its edges, and the reſt of the conjunctiva ſurrounding them, are red. Afterwards the wound gradually contracts itſelf every day more and more, until it entirely diſappears, and the cicatrix is complete.

During the whole of the treatment, from the time of the operation, it is not neceſſary to uſe any other application than a lotion of mallow-water three or four times a day. I have been convinced, from repeated obſervation, that aſtringent collyria, and the powders which are ſo highly extolled as that compoſed of the Florentine

tine orris and alum, occaſion great irritation in the eye, and a tumefied and fungous ſtate of the conjunctiva; all of which directly oppoſe the healing of the wound. And what is more diſagreeable they give riſe to little tufts of fungus in the centre of the ſore, which are with difficulty repreſſed and healed. I have ſeen all theſe inconveniences produced by a ſingle unneceſſary application of the argentum nitratum. On the contrary, by ſimply waſhing the parts with the aqua malvæ, the cure proceeds regularly, the yellowiſh ſurface of the wound contracts daily, and the cicatrization is completed in the mildeſt manner in the ſpace of three, or at moſt four weeks. Afterwards it may be uſeful to drop into the eye three or four times a day the vitriolic collyrium, with a few drops of camphorated ſpirit of wine added to it, in order to ſtrengthen the conjunctiva and its veſſels.

I have remarked at the commencement, that the *incipient pterygium* is in reality nothing more than the nebula of the cornea, in which the veins of the conjunctiva, inveſting that part of the cornea where the diſeaſe is ſituated, are a little more dilated than in caſes of the latter; and that the fine lamina of the conjunctiva acquires a greater degree of denſity and opacity in that part, than when it is ſimply affected with

with the *nebula.** To expreſs myſelf more clearly, the pterygium in this caſe is not a denſe and opake membrane, but a pellicule of the fineneſs of a ſpider's web, interwoven here and there with varicoſe blood-veſſels, behind which the iris is yet ſufficiently perceptible. In this ſtate of the diſeaſe, it is not neceſſary to deprive that part of the cornea of its natural covering. It is ſufficient, as in the treatment of the nebula of the cornea, to deſtroy by exciſion the communication between the dilated ramifications of the veins of the pterygium, and the varicoſe venous trunks ſituated upon the white of the eye. This is obtained by removing a ſmall portion of the conjunctiva of a ſemilunar figure, by means of the forceps and ſciſſars, at the part where the cornea and ſclerotica unite, preciſely at the baſe of the incipient pterygium, in the ſame manner as in the treatment of the nebula. After this operation the *incipient pterygium* is obſerved to be gradually diſſipated, or there only remains a ſlight opacity of the cornea, for a certain extent of the part which it occupied, which, however, is moſt frequently far leſs conſiderable than that which is left by a cicatrix of the cornea.

* This middle ſtate between the nebula of the cornea, and the confirmed *pterygium*, is denominated, by the Arabian writers, Sabel. Sabel, ſays Avicenna, eſt panniculus accidens in oculo ex inflatione venarum ejus apparentium in ſuperficie conjunctivæ et corneæ; et texitur quiddam in eo, quod eſt inter eas, ſicut fumus. Lib. iii. ſen. 3. tract 2. cap. 19.

*Acrell*

*Acrell,* in his *chirurgical obſervations,* relates his having cured an *incipient pterygium* in this manner; which I have alſo frequently attempted with perfect ſucceſs, but which I have thought it more proper to detail among the caſes of *nebula* of the cornea than thoſe of the *pterygium,* for the reaſons already aſſigned, and principally becauſe the morbid ſtate of the lamina of the conjunctiva in theſe caſes very little exceeds that in which this covering of the cornea is found, when it is only affected with the *nebula.*

## Case XXXVII.

Antonio Cantoni, of Caſorati, a young countryman, 19 years of age, preſented himſelf at the practical ſchool of ſurgery on the 12th of November 1792, with a *pterygium,* which extended from the external canthus of the right eye, upon the cornea, very near to the pupil.

On the 14th of the ſame month, the patient being ſeated, and the triangular membrane taken hold of with the forceps, at the diſtance of a line and a half from its apex, and properly raiſed, I carefully ſeparated it from the whole of the cornea; then taking hold of the varicoſe and relaxed conjunctiva, which formed the baſe of the pterygium upon the white of the eye, and elevating it a little, I removed it in the

form of a crefcent clofe to the margin of the cornea, and in the fame direction.

As there was no remarkable fwelling of the eye, or eye-lids on the fucceeding days, the parts were merely waſhed with the aqua malvæ, and covered with a compreſs and bandage.

The ſurface of the wound, as well upon the cornea as upon the white of the eye, diminiſhed daily, and on the 10th of December was completely healed. It was obſervable, that the cicatrix of the cornea did not approach ſo near the pupil as the apex of the pterygium.

## Case XXXVIII.

Mauro Piſani, a robuſt countryman, 45 years of age, was affected with a pterygium in the internal canthus of his right eye, which he had neglected ſo long, that it ultimately covered two thirds of the pupil, occaſioning a great diminution of ſight.

The operation was performed on the 22d of January 1793. The little membrane was very exactly ſeparated, by means of the forceps and ſciſſars, from the cornea, and a portion of the tumid varicoſe conjunctiva, which formed the baſe of the pterygium upon the white of the eye, was removed, in the form of a creſcent. A greater quantity of blood flowed from the inciſion

inciſion than might have been expected from the ſize of it.

On the 5th day after the operation, the yellowiſh layer of mucus, which is a certain indication of ſuppuration, appeared upon the ſurface of the wound. During the whole of the treatment the patient uſed no other external remedy than a lotion of aqua malvæ three times a day, and was ſcarcely at all confined to his bed.

In 26 days the wound was perfectly healed. All that part of the cornea which had been obſcured by the pterygium remained cloudy as before, but with this difference, that when completely healed it occupied rather leſs of the pupil, and the patient therefore ſaw more diſtinctly than before the operation.

## Case XXXIX.

A ſtrong man, 34 years old, a carpenter by trade, had, for ſeveral years, a *pterygium* upon the right eye, which extended from the inferior hemiſphere of the eye-ball, where it is covered by the lower eye-lid, towards the centre of the cornea, ſo as to cover about a fourth part of the pupil in a moderate light.

On the 12th of March 1794, the patient being ſeated in the practical ſchool, and the eye-lids ſeparated, particularly the lower, I took hold of the pterygium at a line and a half from its

its apex, and having raiſed it completely in the form of a fold, I divided it a little beyond the margin of the cornea; then taking hold of the conjunctiva with the forceps, where it covers the white of the eye, I removed the baſe of the pterygium, together with a ſegment of that membrane, in a direction concentric to the margin of the cornea.

The blood was allowed to flow, and the eye was covered with a fold of lint, moiſtened in the aqua litharg. acetat. comp. which was ſupported by a bandage.

The day after, the eye-lids appeared ſwollen, red, and painful. I ordered blood to be taken from the patient abundantly, and the eye to be covered with bags of emollient herbs. The following day he was purged. The inflammation was diſſipated on the 7th day. The conjunctiva remained, however, exceedingly tumefied and red, and the ſurface of the wound did not yet appear covered with mucus.

On the 12th day from the operation, the mucous ſuppuration began to take place, and from that time the wound gradually diminiſhed.

During the whole of the treatment, except the application of bags of emollient herbs at the commencement, no other external remedy was employed than the aqua malvæ. At the end of five weeks the wound was healed. The patient, however, uſed the vitriolic collyrium, with

with the mucilage of quince-ſeed, four times a day, for fifteen days afterwards, and anointed the edges of the eye-lids at night with the ophthalmic ointment of Janin. In this caſe alſo the cicatrix obſtructed the pupil conſiderably leſs than the pterygium had done.

## Case XL.

Franceſco Vecchi, of Calignano, a countryman, 57 years of age, of a weak conſtitution, in the beginning of March 1795, made application on account of two large pterygia, one upon each eye, which had occaſioned a deformity for ſeveral years, and finally threatened to produce blindneſs; for that of the right eye, in a moderate light, covered two thirds of the pupil, the other one half of the left. Both aroſe near the caruncula lachrymalis. This man was likewiſe affected with an habitual chronic ophthalmia in both his eyes.

Theſe pterygia were removed in the manner related in the preceding caſes. On the following day the eye-lids and conjunctiva of both ſides were enormouſly ſwollen, accompanied with redneſs, pain, and fever. I directed blood to be taken from his arm, and alſo from the neighbourhood of the eye-lids, by means of leeches; he was reſtricted to a low diet, and ordered to take a pint of the triticum repens, with

a grain of tartarized antimony in ſmall doſes, and to apply upon the eye-lids bags of emollient herbs.

On the 8th day of this treatment he became eaſy, the inflammatory ſtage of the ophthalmia having ceaſed, and the eye-lids greatly ſubſided. The conjunctiva, however, was exceedingly red, tumefied, and almoſt in a fungous ſtate, and the yellowiſh ſurface of the wound was not yet covered with mucus. Being ſatisfied that the delay of the ſuppuration was partly owing to the atonic ſtate of the veſſels of the conjunctiva, I ſhould have been tempted to employ ſome aſtringent application, had I not been warned by ſimilar caſes, in which the uſe of aſtringent collyria, inſtead of removing the chronic ophthalmia ariſing from relaxation of the conjunctiva, had, on the contrary, reproduced the inflammation. In this caſe, therefore, and as it is now my uſual practice, I was ſatisfied with uſing merely a lotion of mallow-water, and exciting an irritation in the neck, by the application of a large bliſter, which was kept open for ſome time, and alſo repeating it behind the ears.

On the 19th day from the operation, the tumefaction of the conjunctiva being very much diminiſhed, the ſurface of the wound of both eyes began to ſuppurate, and to be covered with mucus. From this time the wound gradually

contracted,

contracted, until the 53d day, when it was completely healed.

The collyrium vitriolicum was now directed to be inſtilled into the eye ſeveral times a day, at firſt alone, but afterwards with a little camphorated ſpirit of wine added to it; and the ophthalmic ointment of Janin to be uſed at night: by continuing theſe remedies for two weeks the conjunctiva recovered its vigour, and the chronic redneſs of the eyes, proceeding from the relaxation of this membrane and its veſſels, diſappeared.

The cicatrix of the cornea of the right eye covered only a third, or little more, of the circumference of the pupil in a moderate light; and that of the cornea of the left eye only a fourth part of the pupil.

## CHAP. XII.

### OF THE ENCANTHIS.

THE *encanthis*, in its commencement, is a ſmall ſoft, reddiſh, or ſometimes ſlightly livid excreſcence, which ariſes from the caruncula lachrymalis, and neighbouring *ſemilunar* fold of the conjunctiva. The inveterate *encanthis* is commonly of a very conſiderable ſize,* and extends its roots beyond the caruncula lachrymalis, and *ſemilunar* fold, as far as the internal mem-

* *Purmannus*, in his *Chirurgia curioſa*, page 133, has left us the deſcription and figure of a tumour as large as the fiſt, proceeding from the internal angle of the left eye by a very ſlender peduncle, and hanging upon the cheek; the obſcurity, however, which pervades the whole of the deſcription of this diſeaſe, and the little accuracy diſplayed in the drawing, leave room to doubt whether this large tumour originated from the caruncula lachrymalis and neighbouring *ſemilunar* fold, or rather from the integuments immediately on the outſide of the internal commiſſure of the eye lids. *Purmannus* ſays, that he extirpated this tumour with ſucceſs, by firſt employing a ligature near its root, and afterwards applying upon the root itſelf the ſmall button of a cautery, included in a canula.

brane

brane of either eye-lid, or of both. In conſequence of its originating and being placed between the eye-lids at their internal commiſſure, which it neceſſarily keeps ſeparated on the ſide next the noſe, it occaſions no inconſiderable inconvenience to the patient, by keeping up the *chronic* ophthalmia, and impeding the action of the eye-lids, particularly that of completely cloſing the eye; and partly by compreſſing, and partly removing the apertures of the puncta lachrymalia from their natural direction, it preſents an obſtacle to the free courſe of the tears from the eye into the noſe.

This excreſcence, in its early ſtate, has generally a granulated appearance, reſembling a mulberry; or it is formed of ſmall fringe-like pieces. But when it has arrived at a conſiderable magnitude, a certain part of it preſents a granulated appearance, while the reſt offers only a ſmooth ſubſtance of a whitiſh or cineritious colour, ſtreaked with varicoſe veſſels, which occaſionally advances ſo far upon the conjunctiva covering the eye-ball on the ſide next the noſe, as to reach the part where the cornea and ſclerotica unite. When the excreſcence has arrived at an advanced ſtate, it not only conſtantly involves the caruncula lachrymalis and *ſemilunar* fold, but the internal membrane of one or other of the eye-lids, or of both; beſides the attachment, therefore, which the *encanthis* has, in ſuch caſes,

caſes, to the caruncula lachrymalis, *ſemilunar* fold, and conjunctiva of the eye-ball, it is obſerved to give off a firm and projecting appendix or proceſs, along the internal ſurface of the upper or lower eye-lid, in the direction of their edges; or the middle or body of the *encanthis* is, as it were, divided near the cornea, into two appendices or proceſſes, reſembling a ſwallow's tail, one of which extends along the upper eye-lid covered by its margin; the other runs along the internal ſurface of the lower eye-lid, concealed alſo by its margin, in the direction from the internal towards the external canthus of the eye.

The body of the encanthis, or that middle portion of the excreſcence, which extends from the caruncula lachrymalis and ſemilunar fold incluſively, upon the conjunctiva of the eye-ball, almoſt as far as the junction of the cornea and ſclerotic coat, is ſometimes as prominent as a hazel, or ches-nut, at other times it is of this magnitude, but depreſſed, and as if it were flattened. The body of the excreſcence, however, preſerves the granulated appearance which it had at firſt, while one or other, or both its appendices, which are continued upon the internal ſurface of either or both eye-lids, preſent, as I have ſaid, rather the aſpect of a lipomatoſe than a granulated ſubſtance. If the eye-lids are everted, theſe appendices or proceſſes of the encan-

thus

this make an elevated projection, and when this takes place in both the eye-lids, on their being everted, theſe lipomatoſe appendices form almoſt a ring, which is cloſely applied upon the eye-ball. This diſeaſe was known, and ſucceſsfully treated by Fabricius Hildanus, who has called it *ficus ſchirroſus ad majorem oculi canthum.**

It

* Centur. I. obſerv. 2. anno 1598, 20 Febr. ad ædes D. Petri Dumantii verbi divini miniſtri ad quadragenarium, habentem tumorem ſchirrhoſum ad magnum oculi canthum caſtaneæ magnitudine colore livido, et multis venis capillaribus intertextum vocatus fui. Ille autem tumor ab una parte adhærebat conjunctivæ membranæ uſque ad iridem; ab altera vero hærebat palpebræ ſuperiori, et lachrymali glandulæ; ita ut ad oculi motum totam cooperiret pupillam ſcirrhus ille. Nos (ægro purgato, prout in præcedente obſervatione fuſius declaravimus) inciſa item cephalica in ſiniſtro brachio, inſtititaque optima victus rationes præſente M. Nicolao Fevotto, et Daniele le Clerc. Lauſannenſibus, forcipe noſtra oculari hic delineata tumorem apprehendimus. Tum attracta paulatim forcipe, et inverſa ſuperiori palpebra, tumorem cultello ſeperatorio ad id aptato commode ſeperavimus. Poſtea albumen ovi aqua roſacea mixtum impoſuimus. Inde collyriis anodynis, et abſterſivis et tandem exſcicantibus oculum intra ſeptimanas tres, viſu plane illæſo, perſanavimus. Interim tamen purgationes aliquoties interavimus, et cucurbitulas cum largiori flamma ſcapulis et nuchæ admovimus. Defenſivum item fronti et temporibus applicuimus.

Collyrium anodynum. Rec. Mucilag. ſem. cydon, plantag. cum aqua roſacea extractæ, lactis muliebris ana uncias II. camphoræ, croci ana ſcrupulum dimidium, miſce et applica tepide.

Collyrium

It appears, however, that in the caſe related by Hildanus, the encanthis had only one appendix ſituated upon the internal ſurface of the upper eye-lid, below its margin.

The encanthis, as well as the pterygium, ſometimes aſſumes a cancerous malignity, which is characterized by the dark red or leaden colour of the excreſcence; its extraordinary hardneſs; the lancinating pains which accompany it, and which extend to the forehead, the whole of the eye and the temples, eſpecially after it has been even ſlightly touched; by its diſpoſition to bleed; and by its ulcerating in ſeveral points which throw out a fungous ſubſtance, and diſcharge a thin and very acrid humour. This worſt ſpecies, or rather degeneration of the encanthis, admits only of a palliative treatment, unleſs the total extirpation of it ſhould be attempted, together with all the parts contained in the cavity of the orbit; the ſucceſs of which muſt be alſo very doubtful.

Collyrium exſiccans. Rec. Aquarum plantag. roſar. ana uncias quatuor, tutiæ preparatæ, cornu cervi uſti et preparati, ceruſſæ lotæ ana drachmam unam. Miſce fiat collyrium. Hic monitos velim chirurgos; collyria in quæ ingreditur lac, æſtate ſingulis, hyæme vero alternis diebus iteranda eſſe. Aceſcit enim lac, et acre efficitur: hinc dolores, et inflammationes excitat.

The

The benign encanthis, whether ſmall or large, may be cured by means of exciſion. The ſmall incipient encanthis, whether of a granulated or fringe-like appearance, which ariſes from the caruncula lachrymalis and *ſemilunar* fold, or from a ſmall part of the edges of the eye-lids alſo, where they form the internal angle or commiſſure, may be elevated by the forceps, and by means of the curved ſciſſars, ſeparated cloſe to its baſe from the whole extent of its origin. For the purpoſe of executing this operation, it is not neceſſary, as is practiſed by ſome, to paſs a needle and thread through the ſmall excreſcence, in order to raiſe it and detach it with preciſion from all the parts to which it adheres; as this intention may be obtained by means of the forceps, without incommoding the patient by the punctures and introduction of a thread for the purpoſe of forming a nooſe. In the removal of that part of the ſmall encanthis, however, which originates from the caruncula lachrymalis, it is neceſſary not to include more of the ſubſtance of the caruncle than is requiſite for completely eradicating the diſeaſe, leſt by removing too much of it, an irremediable weeping of the eye ſhould be produced.

After the ſmall excreſcence is extirpated, the eye ſhould be repeatedly waſhed with cold water, in order to clear away the blood, and ſhould be covered with a linen cloth and bandage.

On the 5th, 6th, or 7th day, when the inflammation occaſioned by the operation has entirely ceaſed, and the mucous ſuppuration is eſtabliſhed, the divided parts ſhould be touched with a ſmall button of alum, cut in the form of a crayon pencil, and the vitriolic collyrium, with mucilage of quince-ſeed, inſtilled into the eye ſeveral times a day. If theſe means do not produce the deſired effect of healing the wounds, but on the contrary, thoſe of the caruncle and internal commiſſure of the eye-lids become fungous and ſtationary, they ſhould be frequently touched with the argentum nitratum, taking care to avoid the conjunctiva as much as poſſible, eſpecially if any part of it have been included in the inciſion. When the fungus has been deſtroyed, the treatment may be completed by the vitriolic collyrium, or by introducing an ointment conſiſting of freſh butter, the powder of tutty, and armenian bole, between the eye-ball and internal angle of the eye-lids three times a day. Bidloo greatly extols the application of the powder of chalk, either ſimple, or combined, with burnt alum. *Exercit. Anat. Chir. decad* II.

The large inveterate encanthis, whether flattened in its body, or projecting in the form of a hazel or ches-nut, with one or two lipomatoſe appendices along the internal membrane of either or both eye-lids, is equally cured by means of exciſion

ciſion. The ligature cannot be employed in this caſe advantageouſly, ſince the neck or peduncle of the excreſcence is never ſufficiently narrow to admit of its application; the encanthis on the contrary, when very voluminous, having conſtantly extenſive attachments to the caruncula lachrymalis, ſemilunar fold, to the conjunctiva almoſt as far as the vicinity of the cornea, and alſo one or two lipomatoſe appendices along the internal membrane of either or both of the eye-lids. If, therefore, the body of the encanthis ſhould be removed by the ligature, either one or both the lipomatoſe proceſſes would always remain to be extirpated, which ſecond operation could only be executed by means of exciſion. The fear of hæmorrhage, in this operation, upon which the advocates for the ligature appear to lay ſo much ſtreſs, is unfounded, ſince the caſes of large and inveterate encanthis, which have been removed, are now ſo numerous, without any unfavourable accident having happened on account of the loſs of blood (to which I could add ſome of my own) that upon this point * there cannot be any room for doubt or diſcuſſion.

* Pellier, Recueil d'obſerv. ſur les malad. de l'oeil, part II. obſerv. 118, relates a caſe of exciſion of the encanthis, which although executed, as he ſays, by an able oculiſt, was, however, followed by a dangerous hæmorrhage. He does not enter, however, into any detail of the nature of the diſeaſe, nor

diſcuſſion. Fabricius Hildanus, in the caſe of the large and inveterate encanthis before cited, in which there was only one lipomatoſe proceſs along the internal membrane of the upper eye-lid, after having taken hold of the body of the tumour with the tenaculum, and drawn it towards him, and having everted the upper eye-lid, ſo that this appendage might project forwards through its whole extent, with a ſmall biſtoury ſeparated this proceſs from the internal ſurface of the eye-lid, and by continuing the inciſion divided the body of the encanthis from the conjunctiva covering the eye-ball, the ſemilunar fold, and caruncula lachrymalis. This operation was attended with the happieſt ſucceſs, and therefore ought to ſerve as a model and guide to ſurgeons in the treatment of this diſeaſe.

When, however, the inveterate, and very large *encanthis* has two lipomatoſe appendices, one along the internal ſurface of the upper, the other of the lower eye-lid, it is then neceſſary to proceed in the following manner: the patient ſhould be placed in a chair, and the upper eye-lid everted by an aſſiſtant, ſo that one of the

nor of the method of operating, from which one might have been enabled to deduce the cauſes of ſo unuſual an occurrence. Indeed, he adds: J'ai ſouvent fait cette operation a des excroiſſances de cette nature, et jamais je n'ai èprouvé un pareil accident.

proceſſes

proceſſes of the encanthis may project outwards. This being deeply divided in the direction of the edge of the eye-lid, by means of a ſmall biſtoury, and then taken hold of and drawn out by the forceps,* ſhould be entirely ſeparated from the internal ſurface of the upper eye-lid, longitudinally, proceeding from the external towards the internal angle of the eye, as far as the body or middle portion of the encanthis. The lipomatoſe proceſs, ſituated upon the internal ſurface of the lower eye-lid, ſhould be ſeparated in the ſame manner. The body of the encanthis ſhould be afterwards elevated by means of the forceps, or, if this is not practicable, by a double hook, and then partly by means of the ſmall biſtoury, and partly by the curved ſciſſars, completely detached from the ſubjacent conjunctiva which covers the eye-ball, from the ſemilunar fold and caruncula lachrymalis, penetrating more or leſs deeply into the ſubſtance of the latter, as the firmneſs and depth of the roots of the diſeaſe may render it neceſſary, ſince it ought to be openly acknowledged that in the treatment of the inveterate and very large encanthis, which is deeply rooted in the caruncle, it is not always in the ſurgeon's power to avoid the ſubſtance of that part ſo carefully that when the wound is healed, ſome little weeping of the

* Plate III. 12. 8.

eye may not remain in conſequence of the operation.

The eye ſhould be frequently waſhed with cold water, and the after treatment in this caſe conducted nearly in the manner recommended in the extirpation of the ſmall incipient encanthis. Frequent lotions of the aqua malvæ and anodyne and detergent collyria are the moſt proper applications, until the mucous ſuppuration in the divided parts be fully eſtabliſhed; afterwards ſlight aſtringents, and the ointment before recommended, may be uſed with advantage. In general, the mildeſt applications are the moſt uſeful, not only in the ſtage preceding the ſuppuration, but afterwards; eſpecially when, together with the encanthis, a conſiderable portion of the conjunctiva, covering the white of the eye on the ſide towards the noſe, has been removed, to which the body of the excreſcence was cloſely united.

The whole of this chapter will be greatly illuſtrated by the following caſe of Marchetti.* *Curavi quemdam canonicum polonum laborantem meliceride magnitudinis jujubæ, quæ a caruncula anguli majoris oculi ad totam pupillam porrigebatur. A multis tentata curatio medicamentis, decoctis ſcilicet, collyriis et aliis hujusmodi; omnia tamen octo menſium ſpatio incaſſum adhibita. Cum vero*

* Obſerv. med. Chirurg. Sylloge, obſ. 21.

*me*

*me conſuluiſſet, ipſum tumorem evellendum cenſui; quod cum reformidaret ſpe tamen ſalutis operationem admiſit, quam ſtatim molitus ſum, corpore prius expurgato accuratiſſime ab aliis medicis. Paravi itaque hamulum, quo ipſam meliceridem perforavi, et manu apprehendi, altera vero forcipe eamdem cum folliculo ſectione ſeparavi tum a caruncula, tum a tunica adnata, et ipſa pupilla; atque ita totum tumorem eduxi ſine ulla offenſa ipſius oculi; a quibus ſtatim applicui goſsypium imbutim aqua roſacea cum ovi albumine agitata, et portiuncula croci, patiente tres dies hoc modo faſcia vincto; adhibito poſtmodum collyrio cum aqua roſarum, et pulvere tutiæ præparatæ; quibus ſpatio octo dierum omnino convaluit æger; increpante licet meam præceptore meo* ab Aquapendente *audaciam, cum tamen brevi ſpatio temporis id præſtiterim, quod alii medici non potuerunt perficere: idque præſentibus præclariſſimo* Joanne Dominico Sala *cum multis ſtudioſis.*

## CHAP. XIII.

### OF THE HYPOPION.

By the term hypopion, I mean with the generality of ſurgeons, that collection of yellowiſh glutinous humour, ſimilar to matter which takes place in the anterior chamber of the aqueous humour, and not unfrequently alſo in the poſterior chamber, in conſequence of the violent *acute* ophthalmia, particularly where it is internal. For, as I have ſaid, in ſpeaking of the inflammation of the eyes, although the violent *acute* ophthalmia is, in the greater number of caſes, principally confined to the external parts of the eye, it nevertheleſs occaſionally attacks with an equal degree of violence both the external and internal membranes of this organ, particularly the choroidea and uvea. If, in the latter caſe, the inflammation, which affects the interior part of the eye, is not ſpeedily arreſted by the moſt effectual means, a coagulable lymph tranſudes from the choroid membrane and uvea, which, in proportion as it is poured into the cavity of the eye, is carried into the chambers

chambers of the aqueous humour, paſſes before the pupil, and falls to the bottom of the anterior chamber, ſometimes filling a third part of it, at other times half, and occaſionally reaching ſo high as entirely to obſcure and conceal the iris and pupil.

This tenacious humour of the *hypopion* is generally called, not only by the common people, but alſo by ſurgeons, *matter*; but, in my opinion, very improperly, in the ſenſe at leaſt in which the term matter is generally received. For in this caſe it is not the product of an abſceſs or ulceration of the internal or external membranes of the eye-ball, but ſimply the reſult of a tranſudation of coagulable lymph, from the internal ſurface of the inflamed choroidea and uvea; preciſely as takes place in all other membranes of the body affected with violent inflammation, as the dura and pia mater, for inſtance, the pericardium, the pleura, the peritoneum, and the membrane proper to the viſcera; all of which, under ſuch circumſtances, are covered with a glutinous ſurface, or thin layer of coagulable lymph, exactly ſimilar to the viſcid matter which is collected in the chambers of the aqueous humour conſtituting the *hypopion*. In the moſt frequent caſes of *hypopion* at leaſt, no one among the moſt accurate and experienced ſurgeons has hitherto demonſtrated

that this diſeaſe has been preceded by an abſceſs of the internal membranes of the eye; or has ever obſerved the *hypopion* in conſequence of an ulcer of the choroidea or uvea. If, however, notwithſtanding this, it ſhould be inſiſted that there is no eſſential difference between coagulable lymph effuſed from a membrane violently inflamed, and *matter*, it muſt then be conceded that there are caſes in which matter is formed without abſceſs or ulceration, and that the *hypopion* is a diſeaſe preciſely of this deſcription.

The ſymptoms which would induce one to fear a tranſudation of coagulable lymph within the eye, or the formation of an hypopion, are thoſe of the violent *acute* ophthalmia in the moſt exceſſive degree; as great ſwelling of the eye-lids, redneſs and tumefaction of the conjunctiva, as in the *chemoſis*; burning heat in the eye with acute pain in it, as well as in the ſupercilium and neck; fever, watchfulneſs, averſion to the weakeſt light, and contraction of the pupil.

As ſoon as the hypopion begins to be formed, a ſmall yellow line, in the form of a creſcent, is ſeen at the bottom of the anterior chamber of the aqueous humour, which, in proportion as the glutinous humour tranſudes from the inflamed internal membranes of the eye, paſſes forwards through the pupil, and is precipitated in the aqueous humour, increaſing in all its dimenſions

menſions and gradually concealing firſt the lower hemiſphere of the iris, then aſcending as high as the pupil, and finally covering the whole circumference of that membrane. As long as the inflammatory ſtage of the violent *acute* ophthalmia ſubſiſts, the *hypopion* continues to increaſe; but as ſoon as this ſtage ceaſes, and the ophthalmia enters upon the ſecond period, or that from local debility, the quantity of coagulable lymph forming the hypopion is no longer augmented, but is rather diſpoſed to diminiſh.

This fact ſufficiently ſhows the importance of arreſting the progreſs of the hypopion, by employing, in the moſt rigorous manner, thoſe means which are moſt efficacious in ſuſpending and repreſſing the impetus of the violent acute ophthalmia in its firſt ſtage. In ſuch caſes, therefore, copious, general, and local bleeding ſhould immediately be had recourſe to, and in the caſe of *chemoſis*, the diviſion of the conjunctiva; mild purgatives ſhould be employed, bliſters to the neck, bags of emollient herbs, and other auxiliaries of this kind, which have been already enumerated in treating of the firſt ſtage of the violent acute ophthalmia. This intention is known to be accompliſhed, by obſerving, that ſome days after this treatment, although the redneſs of the conjunctiva and eye-lids ſtill continues, the lancinating pains in the eye have ceaſed; the heat and fever have conſiderably di-

miniſhed; the patient's ſleep and general eaſe are reſtored; that the eye can be eaſily moved; and laſtly, that the collection of tenacious humour forming the hypopion has become ſtationary. It is not uncommon, eſpecially among the lower claſſes of people, to ſee patients in the ſecond ſtage of the violent acute ophthalmia, who carry this collection of coagulable lymph depoſited in the chambers of the aqueous humour with the utmoſt indifference, and without complaining of any of thoſe ſymptoms which characterize the acute ſtage of the diſeaſe. It is only at this period, I have ſaid, or when the acute ſtage of the violent ophthalmia is over, that the hypopion ceaſes to augment, and the glutinous matter of which it is formed begins to be diſſolved, and in a ſtate to be abſorbed, provided this ſalutary operation of nature is not prevented or retarded by the improper conduct of the patient.

To thoſe who are little acquainted with the treatment of diſeaſes of the eyes, it would certainly appear that the moſt expeditious and effectual method of treating the hypopion, which has become ſtationary in the ſecond ſtage of the violent acute ophthalmia, would be that of making an inciſion in the lower part of the cornea, in order to give a ſpeedy iſſue to the matter contained in the chambers of the aqueous humour; particularly as this is the doctrine

which

which is commonly taught in the ſchools of ſurgery. Yet experience proves the contrary, and demonſtrates that the diviſion of the cornea in theſe caſes is ſeldom attended with ſucceſs, and that, on the contrary, it moſt frequently gives riſe to evils of greater magnitude than the hypopion itſelf, notwithſtanding the modification ſuggeſted by Richter;* that is, of not evacuating the matter of the hypopion all at once, nor of promoting the diſcharge of it through the inciſion in the cornea, by means of repeated preſſure or injections, but of allowing the tenacious lymph to be ſlowly diſcharged of itſelf. From a very conſiderable number of obſervations made upon this point, I have found, that however ſmall the wound made in the lower part of the cornea may be for the purpoſe of giving iſſue to the matter of the hypopion, it moſt frequently reproduces the inflammation and occaſions a greater effuſion of coagulable lymph into the chambers of the eye than before. And if, even after the diviſion of the cornea, the matter of the hypopion be permitted to flow out gradually and by drops, in conſequence of its tenacity ſome days elapſe before it is entirely evacuated; and the glutinous lymph by keeping open, in the mean time, the lips of the wound of the cornea, cauſes it to ſup-

* Obſerv. Chirurgicarum faſciculus primus, cap. 12.

purate

purate and degenerate into an ulcer, through which, after the tenacious fluid is evacuated, a diſcharge of the aqueous humour takes place, and afterwards a protruſion of a portion of the iris; by the diviſion of the cornea therefore nothing more is generally effected than changing the hypopion into an ulcer of the cornea, with procedentia of the iris, and ſometimes even of the cryſtalline.* Nor can any particular inſtance of ſucceſs, in which the matter of the hypopion has been ſpontaneouſly diſcharged from a narrow fiſſure in the cornea, be adduced as an argument in favour of an artificial diviſion of this membrane by the knife, in caſes of ſtationary hypopion in the ſecond ſtage of the violent acute ophthalmia. For it is known, by experience, that there is a material difference between the effects of the opening of a natural or preternatural cavity of the animal body, ſpontaneouſly, or procured by cauſtic, and that made by the knife; ſince in the two former, the conſecutive ſymptoms are conſtantly milder than in the latter, or that of inciſion; independently of the ſpontaneous burſting of the hypopion through the cornea, being alſo not unfrequently followed by a diſcharge of

* Richter ſays in the ſame place. Aliquando vero cum operationem, hypopii poſt ophthalmiam vehementem orti inſtituerem, accidit ut inciſa cornea, et elapſo humore aqueo, lens cryſtallina in cameram oculi anteriorem prolaberetur, et dilatatio corneæ vulunſculo eximi ex oculo deberet.

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the aqueous humour, and afterwards by a precedentia of the iris; and therefore the ſpontaneous rupture of the hypopion cannot in any reſpect ſerve as a rule in the treatment of this diſeaſe.

I know only one caſe in which the inciſion of the cornea, for giving iſſue to the matter of the hypopion may be conſidered, not only as uſeful, but even neceſſary, that is, where the accumulation of coagulable lymph poured into the cavity of the eye is ſo conſiderable, that from the exceſſive diſtenſion which it produces upon all the membranes of the eye-ball, it occaſions ſymptoms of ſuch magnitude as to threaten, not only the complete deſtruction of the organ of viſion, but alſo the patient's life, as I ſhall have occaſion to ſhow towards the end of the chapter. This particular caſe, however, cannot ſerve as a model for the treatment of the common hypopion, or that which is moſt frequently met with in practice.

If it is certain beſides, as it indubitably is, that blood extravaſated in the eye, in conſequence of any violence, and that even collections of membranous flocculi of the *capſular* cataract, puſhed by the point of the needle from the poſterior into the anterior chamber of the aqueous humour, inſenſibly diſſolve, and are ultimately entirely abſorbed, as I ſhall prove in the chapter on cataract; and that the ſame thing

thing happens to the *milky* or *caſeous* cataract when broken down, and even to the cryſtalline lens itſelf deprived of its capſule and lodged in the vitreous humour by means of the operation; there is no cauſe to doubt that the ſame abſorption can take place alſo in caſes of collections of coagulable lymph, extravaſated in the chambers of the aqueous humour, when the ſource from which the glutinous humour is derived has been ſuppreſſed, and the power of the abſorbing ſyſtem of the eye at the ſame time reſtored.

It appears clearly from theſe facts, in my opinion, that the reſolution of the hypopion, by means of abſorption, forms the primary indication, which ought to direct the ſurgeon in the treatment of this diſeaſe. I have remarked, that in order to arreſt the progreſs of this diſcaſe, the only efficacious method is that of reſiſting the violence of the inflammation, and ſhortening the acute ſtage of the ophthalmia, by the rigorous employment of the antiphlogiſtic treatment, and by mild and emollient applications. If this method of treatment ſucceed, as it does in the greater number of caſes, the incipient collection of coagulable lymph poured into the bottom of the anterior chamber of the aqueous humour, not only ceaſes to augment, but in proportion as the ophthalmia diſappears the abſorbent ſyſtem takes up the hete-

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rogeneous humour, and the white or yellowiſh ſpot, of a creſcent-like form, ſituated at the bottom of the anterior chamber of the eye, gradually diminiſhes, and ultimately diſappears altogether. *Janin* * conſidered an infuſion of the flowers of the mallow applied upon the affected eye, as a ſpecific ſolvent for the hypopion, but it is now known that any external emollient application, provided it be combined with the moſt exact and efficacious internal antiphlogiſtic treatment, in order to repreſs the acute ſtage of the violent ophthalmia, is productive of the ſame beneficial effect as the decoction of the flowers of mallows. Warm water alone is attended with the ſame advantage.

" A young woman," ſays the celebrated practitioner *Nannoni*, " was ſtruck upon the eye with an ear of corn; in conſequence of which it inflamed and produced a white matter, which preſented itſelf behind the cornea, in the form of a creſcent, without its being poſſible to determine whether it was contained in the laminæ of the cornea, or in the anterior chamber; whence I was aſked, whether it could be evacuated by an inciſion; eſpecially as the patient complained of great pain in the eye and forehead. I ſaid, in the preſence of Dr. Lulli and a number of ſurgical ſtudents, this patient being

* Mémoires et obſerv. ſur l'œil, ſect. 9. page 405.

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in the hoſpital, that the great pain which ſhe complained of was not occaſioned by the matter, but by the cauſe from which the matter originated. Which cauſe conſiſted in an inflammation that would be probably increaſed by giving a more free acceſs to the external air than it has with the internal parts, where there is no external wound. By fomenting the eye and forehead with warm water, the inflammation ceaſed, and the matter diſappeared; a circumſtance which we have now ſo frequently obſerved to follow, that even in this inſtance, we may boaſt of the ſimplicity of the healing art."

Such indeed is the happy termination of the hypopion, when the diſeaſe has been attended to from its commencement, and when the internal antiphlogiſtic treatment, and the emollient applications to the eye, ſpeedily arreſt and repreſs the *acute* ſtage of the violent ophthalmia. But it occaſionally happens, either in conſequence of the inflammatory period of the ophthalmia having reſiſted more than uſual the means which are employed, or becauſe they have been adopted too late, that the quantity of coagulable lymph poured into the eye, and collected in the chambers of the aqueous humour, is ſo conſiderable that it continues for a long time, even after the acute ſtage of the ophthalmia has entirely ceaſed to obſcure the eye, and intercept

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the viſion. I have repeatedly ſeen patients, particularly in the lower claſs of people, as I have before obſerved, in whom the inflammatory ſtage of the violent ophthalmia having ſubſided very ſlowly, either from negligence or improper treatment, the anterior chamber of the aqueous humour has remained, for a long time, almoſt entirely filled with the viſcid matter of the hypopion, which, the inflammation having ceaſed, they have carried about almoſt with indifference, without complaining of any conſiderable pain, or of any inconvenience in the eye, except the difficulty of ſeeing with it. It is evident, that in this ſecond ſtage of the ophthalmia, the diſſolution of the hypopion can neither be obtained by the ſame means, nor with the ſame celerity, as in the firſt. For in the ſecond ſtage of the ophthalmia, both on account of the quantity and denſity of the viſcid matter effuſed, as well as of the atony of the vaſcular ſyſtem of the eye, it is not only neceſſary to allow nature time to effect a diſſolution of it in the aqueous humour, and thereby diſpoſe it to be inſenſibly abſorbed along with this fluid, which is inceſſantly renewed; but alſo to invigorate the diminiſhed power of the vaſcular ſyſtem of the globe of the eye, particularly that of the abſorbents, by artificial means; which muſt require more or leſs time, according

cording to the age and conſtitution of the patient.

In the ſecond ſtage of the violent acute ophthalmia, accompanied with hypopion, the ſurgeon's attention therefore, ſhould be confined to remove from the eye whatever may irritate it, or reproduce the inflammation in it; and he ſhould only employ thoſe means which may contribute to diſſipate the ſecond ſtage of the ophthalmia, ariſing from a laxity of the conjunctiva and its veſſels, and to excite, at the ſame time, the action of the abſorbents. Under theſe circumſtances, therefore, he ſhould, in the firſt place, carefully aſcertain the degree of ſenſibility of the affected eye, by introducing between the eye-lids and ball, ſome drops of the vitriolic collyrium, with mucilage of quince-ſeed; and if he ſhould find that this application cauſes too great an irritation in the eye, he ſhould immediately deſiſt from it, and confine himſelf for ſome time to bags of tepid mallows, with the addition of a few grains of camphire, and at intervals the ſpirituous aromatic vapour mentioned in the chapter on ophthalmia, and the bliſter to the neck ſhould be repeated. When the exceſſive morbid ſenſibility of the eye has ceaſed, he ſhould return again to the uſe of the vitriolic collyrium, at firſt ſimple, but afterwards conjoined with a little camphorated ſpirit of wine. During this treatment,

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the ſurgeon will perceive, that in proportion as the chronic ophthalmia is diſſipated, and the action of the abſorbent ſyſtem of the eye excited, the tenacious matter of the hypopion is firſt divided into ſeveral parts, or ſmall maſſes; that it afterwards becomes more dilute, diminiſhes in quantity, and ſubſides towards the lower ſegment of the cornea, and ultimately diſappears altogether.

The ſurgeon cannot always promiſe himſelf to obtain the ſame ſucceſs in the treatment of the hypopion, whether this diſeaſe be in the firſt or ſecond ſtage of the violent acute ophthalmia, when the tenacious lymph, which is rapidly poured into the eye, is in ſo conſiderable a quantity as not only to fill completely both the chambers of the aqueous humour, but alſo to diſtend them violently, and to produce conſiderable preſſure, particularly upon the cornea. This unfortunate circumſtance, notwithſtanding the moſt effectual efforts of art, adapted to the peculiar ſtate of the diſeaſe, is frequently followed by another accident of ſtill greater magnitude than the hypopion itſelf, I mean the ulceration, offuſcation, and rupture of the cornea, either in its circumference or centre oppoſite the pupil; or in that part of it which offers the leaſt reſiſtance.

The proximate cauſe of this accident, is not ſo much to be attributed to the acrid quality of

the matter of the hypopion, as ſome pretend, as to the exceſſive degree of preſſure which it makes upon the cornea from within outwards. Mr. John Hunter,* who has left us ſome important reflections upon this part of ſurgical pathology, has remarked, that extraneous ſubſtances lodged in any part of the animal body, although from their nature and figure not injurious, are continually determined and propelled by the powers of nature towards the ſurface of the body; and that the ſame, or even a leſs degree of preſſure, which, applied to the animal body externally, does not produce ulceration of the ſkin, when directed from within outwards, excites in the part which is compreſſed, the ulcerative proceſs, and that conſtantly from within, towards the ſurface of the body. The matter of the ciliary glands for inſtance, collected in large quantity, and diſtending the lachrymal ſac, which might eaſily force a paſſage through the naſal canal, rather occaſions by its preſſure, from within outwards, the ulceration of the ſac, while the ſame degree of preſſure applied upon the external part of it, would certainly not be ſufficient to produce the ſame effect. Matter confined in the frontal ſinuſes rather occaſions a corroſion of the bones and integuments of the forehead, by its preſſure

* A Treatiſe on the blood, inflammation, and gun-ſhot wounds.

from

from within outwards, than forces its natural way into the noſe. A muſket-ball lodged among the muſcles, in proceſs of time is puſhed, without any inconvenience, towards the ſurface of the body; but no ſooner does it preſs upon the ſkin from within outwards, than it occaſions it to ulcerate and open a paſſage for it. Preciſely in the ſame manner, and in conformity with the ſame law, the coagulable lymph poured into the eye, forming the hypopion, is continually directed towards the cornea; and if this matter is in ſuch quantity, as to preſs upon the cornea from within outwards, beyond a certain degree not eaſily determinable, the texture of this membrane is immediately acted on by the abſorbents, ulcerated and corroded.

When this happens, the ulceration of the cornea in general proceeds with ſuch rapidity that the ſurgeon has ſeldom ſufficient time to prevent it. And when the corroſion and rupture of the cornea has taken place in any part of it, the redundant quantity of coagulable lymph confined in the eye * begins to be diſcharged through this opening, with great relief to the patient. This advantage, however, is not of long duration; for when the glutinous humour, which diſtended the whole of the eye enor-

* It is on this account that this higheſt degree of the hypopion, is called, by the greater part of ſurgeons, the *empyema of the eye.*

mouſly, and particularly the cornea, is entirely, or in a great meaſure, evacuated, it is very frequently followed by a fold of the iris, which paſſes acroſs the ulcer or fiſſure of the cornea; from which it projects externally, conſtituting the diſeaſe denominated the procidentia of the iris, of which I ſhall ſpeak fully in the next chapter.

If, under ſuch urgent circumſtances, the cornea already ulcerated, darkened, and in a great meaſure diſorganized, is ſlow in burſting, the violence of the ſymptoms, which ariſe from the exceſſive diſtenſion of the eye-ball, obliges the ſurgeon to open this membrane artificially, in order to free the patient from the violent pain, as well as the danger of loſing his life,* which may be

* Memoires de l'Acad. vol. xiii. 8. page 279. I paſſed ſome days in a garriſon-town, where two ſiſters, ladies of quality, had, at the ſame time, the ſmall-pox, one of them 20 the other 24 years of age: the variolous matter had been transferred to the eyes; the puſtules upon the whole of the body had dried, and no doubt would have been entertained of the happy termination of the diſeaſe, if the eyes had not been affected. Their tumefaction occaſioned fever, violent pains, accompanied with heat and throbbing. Being called into conſultation with ſeveral ſurgeons of the town, and two or three ſurgeon-majors of the garriſon, I propoſed to open the eyes in order to ſave the patient's lives. My advice was not reliſhed; in vain I repreſented that theſe organs were irrecoverably loſt; the ſtrongeſt objection which was urged to me, was, that they had never heard of ſuch an operation. A phyſician, in particular, thought it exceedingly ſtrange that I ſhould

be executed with the leſs exactneſs, as, in theſe caſes, he can ſcarcely reckon on the preſervation of the organ of viſion. The acuteneſs of the pain in the eye and the whole head in theſe caſes is ſo great that it very frequently produces delirium, and excites an apprehenſion that the brain may be alſo affected by it.

If, after the evacuation of the tenacious humour, by means of the inciſion of the cornea, there were any hope of reſtoring to the patient, even in part, the tranſparency of this membrane, together with the action and uſe of the other parts, which conſtitute the principal organ of viſion, it would be certainly prudent, that the ſurgeon ſhould make the inciſion at the lower part of the cornea, as is practiſed in the extraction of the cataract. But in the caſe of *empyema* of the eye, of which I am now treating, where the cornea is every where injured by the ulcerative proceſs, opake, and ready to fall into a ſpecies of putridity, and where no hope can be entertained of being able to reſtore any

ſhould propoſe to burſt the eyes; but the very ſpeedy death of one of theſe ladies gave the parents ſome regret that they had yielded to the more general opinion. The other ſiſter had the good fortune to eſcape, through the beneficence of nature; a ſpontaneous opening taking place, through which the matter formed between the tunics of the eye was evacuated. Her eyes preſerved their globular form and natural ſize, but ſhe remained blind, after having run the greateſt riſk of her life.

part of it to its former tranſparency, the beſt method of ſpeedily relieving the patient from the intolerable pain which he ſuffers, is to divide the centre of the cornea to the extent of a line and a half with a ſmall biſtoury, then to raiſe the divided edge with the forceps, and remove it circularly with a ſtroke of the ſciſſars, leaving in the centre of the cornéa an aperture of the circumference of a lentil-ſeed.

Through this opening, the lips of which do not come in contact, like thoſe of a ſimple inciſion, the moſt fluid part of the matter, which diſtended the eye-ball, immediately eſcapes; the denſe coagulable lymph, by little and little, takes the ſame rout; then the cryſtalline, and in a few days afterwards the vitreous humour alſo. It is very neceſſary, therefore, that the ſurgeon ſhould abſtain from compreſſing the eye-ball ſtrongly, in order to accelerate the evacuation of the vitreous humour, as experience proves that it is advantageous in theſe caſes that this humour ſhould be gradually and ſpontaneouſly diſcharged.

Immediately after the operation the ſurgeon ſhould cover the affected eye with a poultice of bread and milk, which he ſhould renew every two hours, not omitting the uſe of thoſe general remedies which are calculated to arreſt the acute inflammation, and quiet the diſturbed ſtate of the nervous ſyſtem. In proportion as the ſuppuration takes place in the internal part

of

of the eye, the eye-ball diminiſhes, retires to the bottom of the orbit, and finally heals, allowing every advantage for the appoſition of an artificial eye. From what has been advanced, therefore, it muſt be concluded that the inciſion of the cornea is as neceſſary and uſeful in the caſe of *empyema* of the eye, accompanied with the very alarming ſymptoms above-mentioned, and the irremediable opacity of the cornea, which is in a great meaſure diſorganized, as it is contra-indicated and dangerous in the caſe of *hypopion*, which is moſt frequently met with in practice.

## Case XLI.

A ſtrong country-woman, 35 years old, was brought into this hoſpital towards the end of April 1796, on account of a violent acute ophthalmia in both her eyes, with which ſhe had been afflicted three days, with great tumefaction of the eye-lids, redneſs of the conjunctiva, acute pain, fever, and watchfulneſs. She was unable to aſſign any cauſe from which the diſeaſe had ariſen.

I took away blood abundantly from the arm and foot, and alſo locally by means of leeches applied near both the angles of the eyes, and I alſo purged her. Theſe remedies were attended with ſome advantage, in as much as they con-

tributed to abate the inflammatory ſtage of the violent ophthalmia. Nevertheleſs an extravaſation of yellowiſh glutinous lymph appeared in the anterior chamber of the aqueous humour, which filled about one third of that cavity.

By frequently waſhing the parts with the aqua malvæ made tepid, and the uninterrupted application of ſmall bags of gauze filled with emollient herbs boiled in milk, by diet, and repeated mild purges with a grain of the antimonium tartarizatum diſſolved in a pint of the decoction of the root of the triticum repens, the ſymptoms of the ophthalmia were entirely relieved, and on the 11th day the patient was able to bear a moderate degree of light.

By perſiſting in the uſe of theſe emollient applications the matter of the hypopion began to diminiſh, and by degrees, in the courſe of 12 days more, almoſt entirely diſappeared. I now thought it proper to increaſe the ſtrength of the local remedies, by introducing a few grains of camphire into the bags of mallows, which produced the beſt effect. For in leſs than a week the redneſs of the conjunctiva was entirely diſſipated, as well as the ſmall whitiſh line of a creſcent-like figure, which had remained at the bottom of the cornea, depending upon the remaining part of the humour of the hypopion.

## Case XLII.

Maddalena Bignani, the wife of a gardener, in the vicinity of Pavia, 40 years of age, of a delicate conſtitution, was ſeized with a violent acute ophthalmia in her left eye, which, notwithſtanding ſome evacuations of blood, occaſioned an *hypopion* in the anterior chamber of the aqueous humour, ſo that the cornea of that ſide appeared almoſt entirely opake. The patient was admitted into this practical ſchool on the 7th day from the attack of the ophthalmia. She complained of acute and lancinating pain in the eye and correſponding temple.

I ordered leeches to be applied to the angles of the eye-lids, and I purged her gently with two drams of cryſtals of tartar, and a grain of the tartarized antimony, in a pint of the decoction of the root of the triticum repens, taken in divided doſes. A poultice of bread and milk with a little ſaffron was applied upon the eye. In four days the acute ſtage of the ophthalmia ceaſed, together with the lancinating pain in the eye and temple; but the hypopion continued ſtationary. Nothing more was now preſcribed to the patient than food of eaſy digeſtion, and the application of bags of mallows upon the eye, to be renewed as often as they became cold. By this ſimple treatment the matter of the hypopion,

pion, which filled the greater part of the anterior chamber of the aqueous humour, began to be diſſolved and abſorbed; and in the courſe of 18 days, reckoning from the time of the ceſſation of the inflammatory ſtage of the ophthalmia, the pupil was clear.

Some of the tenacious matter yet remained at the bottom of the anterior chamber, and ſome redneſs of the conjunctiva, produced by the ophthalmia, from relaxation. I ordered a few grains of camphire to be added to the bags of mallows, which evidently contributed to accelerate the abſorption, and in the ſpace of 13 days, to clear the white of the eye. When the hypopion was entirely diſſipated, the patient uſed with advantage a collyrium, compoſed of the acetated ceruſe diſſolved in plantain water, with the addition of the mucilage of quince ſeed, in order to conſtringe and ſtrengthen ſtill more the conjunctiva and its veſſels.

## Case XLIII.

A robuſt country-woman, 20 years of age, was ſtruck upon the right eye with a piece of wood; a violent inflammation enſued, and afterwards an hypopion, which occupied about one half of the anterior chamber of the aqueous humour. There was alſo on the external and lower ſide of the cornea, and apparently in the part

part where ſhe had been ſtruck, a ſmall aſh-coloured and deep ulcer, of the circumference of a millet-ſeed, and the conjunctiva appeared exceſſively red and tumefied. The patient was admitted into this hoſpital the 5th day after the accident.

I ordered blood to be taken abundantly from the arm and foot, her bowels to be purged with ſmall doſes of the cryſtals of tartar, and the tartarized antimony, and a poultice of bread and milk, with ſaffron applied upon the eye-lids.

On the 4th day from the patient's admiſſion into the hoſpital, the inflammatory ſtage of the ophthalmia might be conſidered as having ceaſed, except that there was a ſlight pricking in the eye.

On the 6th day I found the patient more than uſually tranquil. When the bag of gauze containing the poultice was raiſed, and the eye opened, I found the hypopion greatly diminiſhed, and obſerved a ſmall drop of the ſame tenacious matter ready to iſſue from the ſmall ulcer upon the cornea, which, as I have remarked, had not been formed from within outwards, but from without inwards. I avoided every kind of preſſure upon the eye ball, which might contribute to the too ſpeedy evacuation of that humour, leſt the iris ſhould follow it. I continued to foment the eye with bags of emollient herbs until the whole of the matter of the hypopion

was

was inſenſibly evacuated by this opening; which was completed in ſeven days. I now touched the ulcer with the argentum nitratum, ſo as to produce a deep and firm eſchar. The acute pain which the patient felt, and the ſudden increaſe of the redneſs of the conjunctiva, led me to fear a return of the inflammation; but by repeated ablutions with warm milk, and emollient applications, together with an opiate emulſion at night, ſhe became perfectly eaſy. The eſchar continued to adhere for four days. On its exfoliation, I touched the ulcer again with the argentum nitratum, and the ſymptoms were much leſs ſevere than the firſt time. On the ſeparation of the ſecond eſchar the bottom of the ſmall ulcer was filled with granulations, and had a tendency to heal. The vitriolic collyrium, with mucilage, employed for two weeks longer, was ſufficient to complete the cure.*

CASE

* I might have extracted from my journal, a very extenſive ſeries of caſes, ſimilar to the three preceding, had I believed that a great number of hiſtories, nearly ſimilar to each other, could have afforded a clearer elucidation of the method of treatment which I have recommended. I ſhall only obſerve that the hypopion in the firſt ſtage of the violent *acute* ophthalmia is rarely met with in the hoſpitals, as it is cuſtomary, particularly among the country people, to be copiouſly and repeatedly bled in inflammations of the eyes, and to employ diligently emollient cataplaſms, with the hope of getting rid of the diſeaſe by theſe means, as it frequently happens. But in the caſe of hypopion, after the violence of the inflamma-

## Case XLIV.

Mauro Spagnoli, a peaſant, 60 years of age, was received into this practical ſchool of ſurgery, the 20th of March 1793, who had one half of the anterior chamber of the aqueous humour of the left eye occupied by a collection of glutinous matter, which, according to his account, took place three weeks after a violent inflammation of that eye, which was removed by bleeding and emollient applications. He did not complain of any remarkable pain in the affected eye, and could bear a moderate degree of light without repugnance. The conjunctiva was red from the relaxation of its veſſels.

The great age of the patient, the ſmall degree of ſenſibility of the eye, and the ſlow and almoſt imperceptible diminution of the hypopion, ſufficiently indicated the neceſſity in this caſe of exciting the action of the abſorbent ſyſtem, and ſtrengthening the veſſels of the conjunctiva, in order to diſſipate the collection of tenacious lymph poured into the anterior chamber of the aqueous humour. Inſtead of employing, there-

tion has ceaſed, they find an extraneous matter poured into the anterior chamber of the aqueous humour, which obſtructs the viſion; and it is at this period, although the diſeaſe does not cauſe conſiderable pain, that they come into the hoſpital, eſpecially if they are advanced in age.

fore,

fore, the antiphlogiſtic method of treatment, and the emollient applications, as in the preceding caſes, I ordered the patient a nouriſhing diet, proportioned to the ſtrength of his ſtomach, and the decoction of cinchona to be taken three times a day in doſes of three ounces. I directed the vitriolic collyrium, with the mucilage of quince-ſeed, to be inſtilled into the eye every two hours, and a bliſter to be applied to the neck. In eight days the hypopion was reduced to one half, and the conjunctiva had loſt the dark red colour which it had at the commencement. The action of the collyrium was increaſed by adding a little camphorated ſpirit of wine to it; and in ten days more the hypopion diſappeared altogether, as well as the chronic ophthalmia from relaxation.

## Case XLV.

Giovanni Nuvola, a peaſant, 45 years of age, a weak ſickly man, labouring in the rice-field, was ſtruck upon the right eye with an ear of rice, with ſuch violence that his eye became inflamed the ſame day, attended with the moſt acute pain; and, in a few days after, a third part of the anterior chamber of the aqueous humour was filled with a tenacious yellowiſh lymph. The ſurgeon under whoſe care he was, bled him abundantly, purged him, and ordered the eye

to

to be aſſiduouſly fomented with an infuſion of elder flowers and leaves of mallows.

On the 7th day, the inflammatory ſtage of the ophthalmia ceaſed, and the hypopion became ſtationary. The patient no longer felt any conſiderable uneaſineſs in the eye, and therefore kept it only defended from the air and light by means of a piece of linen ſuſpended from his forehead. He now left the houſe, and attempted to purſue his labour in the fields; but finding that, two weeks after the inflammation had ſubſided, the ſight remained obſtructed by this yellowiſh matter, he came to the hoſpital. The conjunctiva was affected with ophthalmia from relaxation, and the cornea, beſides the opacity depending on the matter of the hypopion, was, in two points, ſlightly excoriated, as if the epidermis had been removed.

On account of the patient's general and local debility, I ordered him to take the cinchona, and to obſerve a nouriſhing and ſtrengthening diet, and to uſe the vitriolic collyrium externally every two hours, which he could not bear unleſs warmed. In a few days the veſſels of the conjunctiva recovered their former vigour and the chronic ophthalmia diſappeared. The hypopion alſo gradually diminiſhed, and in fifteen days, the cornea having recovered its natural ſtate of tranſparency, the patient uſed the ophthalmic ointment of Janin for a few times only

only at night, and then left the hoſpital perfectly cured.

## Case XLVI.

Filippo Saletta, a miller, of Calignano, 56 years of age, was received into the practical ſchool of ſurgery, on the 26th of December 1794, on account of an hypopion which occupied two thirds of the anterior chamber of the aqueous humour of the right eye. The blood-veſſels of the conjunctiva were very much dilated and varicoſe, the eye-lids gummed, and there were ſuperficial excoriations in ſome points of the cornea. He did not, however, complain of much pain in the eye, and expoſed himſelf freely to the light. He related that at the commencement of the diſeaſe, which had continued for a month, he had found relief from being bled; but that afterwards, notwithſtanding the application of warm fomentations of mallow-water, the diſeaſe had remained nearly in the ſame ſtate as a few days after the bleeding.

I directed the patient in this caſe, as in a great variety of others ſimilar to it, to take two drams of the cinchona three times a day, and to obſerve a ſtrengthening animal diet. Externally, I ordered the vitriolic collyrium, compoſed of five grains of the vitriolated zinc, four ounces of plaintain

plantain water and half an ounce of the mucilage of quince-ſeed, to be dropped into the eye every two hours. And as the eye appeared very little ſenſible to the ſtimulant and aſtringent action of this remedy a ſmall quantity of camphorated ſpirit of wine was added to it. In 18 days, the hypopion, as well as the chronic ophthalmia, from relaxation, diſappeared. In order to ſtrengthen the part, and correct the morbid ſecretion of gum, the ophthalmic ointment of Janin * was afterwards introduced morning and evening, between the eye-lids of the affected eye, and continued for 12 days.

* With regard to this remedy, I ought again to caution the young ſurgeon not to uſe it at firſt except with a larger quantity of lard than is directed in the formula; otherwiſe it generally occaſions too much irritation, and inſtead of being uſeful is injurious.

## CHAP. XIV.

### OF THE PROCIDENTIA IRIDIS.

THE *iris* preſerves its natural poſition, and is kept at a proper diſtance from the cornea, as long as the humours which fill the cavity of the eye, in which that body is immerſed and ſuſpended, remain in perfect equilibrium with each other, during which the *iris*, although of the moſt delicate and diſtenſile texture, contracts or relaxes itſelf without forming any unnatural fold. But if, after the effuſion of the aqueous humour, in conſequence of any accidental or artificial opening in the cornea, the preſſure made by the humours of the eye behind the *iris*, is not balanced by the fluid contained in the anterior chamber, the *iris* is neceſſarily puſhed forwards by little and little towards the cornea, and is in part gradually forced out of the eye, through the ſame opening by which the aqueous humour was evacuated. Hence, under ſuch circumſtances, a ſmall tumour is formed upon the cornea, of the peculiar colour of the *iris*, which, by the greater part of ſurgeons,

geons, is termed *ſtaphyloma* of the iris, but which I have thought proper to call with Galen * *Procidentia Iridis*, in order to diſtinguiſh it from another diſeaſe to which the word *ſtaphyloma* more particularly applies.

The *procidentia iridis* is occaſioned by wounds and ulcers of the cornea, penetrating for ſome extent into the anterior chamber of the aqueous humour, and alſo by violent contuſions of the eye-ball with rupture of the cornea. If, immediately after an accidental or artificial wound of the cornea, as that which is made in the extraction of the cataract, or for the purpoſe of evacuating the matter of the hypopion, as is practiſed by ſome, the lips of the wound do not immediately return into mutual contact, and are not maintained in ſufficient union to prevent the aqueous humour in proportion as it is renewed from flowing out of the anterior chamber; the iris being drawn along by the current of the aqueous humour, which is inceſſantly di-

* De differentiis morborum, claſs III. cap. 13. Contingit vero nonnunquam, ut tunica cornea appellata profundum habeat ulcus, qua deinceps exiſa tota, aliquid ex ea tunica *procidat*, quæ ſecunda poſt corneam ordine ſita eſt, uvea appellata, et ipſa pupillæ una divulſionem patiatur. Atque ex his tribus quælibet paſſio oculi exiſtimatur: quodvis ulcus et eroſio ad ſolam corneam pertinet, *procidentia* ad uveam, et divulſio ad pupillam.

Et tunica uvea, ut plurimum, relaxatur, cum corneam minium erodi contigerit. De cauſſ. morbor. claſs III. cap. 6.

rected towards the wound of the cornea, insinuates itself between the lips of the wound, elongates, and by degrees a portion of it is protruded, and projects upon the cornea in the form of a small tumour. The same thing takes place when there is a recent wound of the cornea, and the eye-ball is unfortunately struck, or too much compressed by the bandage; or the patient is seized with a spasm of the muscles of the eye, with excessive and repeated vomiting, or with violent and frequent fits of coughing. This disease is still more frequently the consequence of ulcers penetrating into the anterior chamber of the aqueous humour, than of wounds of the cornea, inasmuch as the solution of continuity of the cornea, in consequence of ulceration, is accompanied with loss of substance, and the lips of the ulcer do not admit of being placed in mutual contact, in a membrane so tense and compact as the cornea. The small tumour is necessarily of the colour of the iris, that is, brown or grey, and is surrounded at its base by a small opake circle * of the cornea, which is ulcerated, or has been for some time divided.

As the cornea is in general only perforated in one part of its circumference, whether in consequence of wound or ulcer, so most frequently

* Plate II. fig. 6.

there

there is only one *procidentia* of the iris met with in the ſame eye. But if it happen that the cornea has been wounded or eroded in ſeveral diſtinct places, more protruſions of the iris take place in conſequence of them in the ſame eye, and there are as many ſmall tumours projecting upon the ſurface of the cornea as there are apertures. I have ſeen a caſe in which there were three diſtinct *procidentiæ* of the iris upon the ſame cornea, in conſequence of three ſeparate ulcers penetrating into the anterior chamber of the aqueous humour, one of theſe being ſituated in the upper, and two in the lower ſegment of the cornea.

If we conſider for a moment the delicate ſtructure of this membrane, the great number of blood veſſels with which it is ſupplied, the numerous filaments of nerves which are directed towards it, as to a common centre, and diſtributed upon it, it is eaſy to conclude how violent the ſymptoms which uſually accompany this diſeaſe muſt be, although the portion of the iris projecting out of the cornea be ſmall, and not larger than the head of a fly. The harſh and repeated friction to which this delicate membrane is expoſed, from the motion of the eye-lids, from the acceſs of the air, of tears, and of matter, are ſufficient cauſes of continual and inevitable irritation. Added to this, that the ſmall portion of the iris, which is protruded,

in conſequence of the increaſed afflux of blood towards the part moſt irritated, acquires ſhortly after its appearance a larger ſize than at the time when it was forced out of the cornea; on which account it is more compreſſed and irritated a little after its appearance out of the cornea, than before. In the commencement of this diſeaſe the patient complains of a pain, as if a thorn were fixed in the eye; this is afterwards accompanied with an uneaſy ſenſe of tightneſs or conſtriction of the eye-ball, which is ſucceeded by an inflammation of the conjunctiva and eye-lids, a diſcharge of ſcalding tears, and a complete averſion to the light. And as the protruded fold of the *iris* draws the reſt of the ſame membrane towards that part, the pupil, from mechanical neceſſity, aſſumes an oval figure,* and is removed from the centre of the iris towards the ſeat of the protruſion. The intenſity of the pain, inflammation, and other ſymptoms which accompany the *procidentia iridis*, do not, however, always continue to increaſe; for caſes are very frequently met with in practice of long ſtanding, in which the diſeaſe having been left to itſelf, the pain and inflammation have ſpontaneouſly ceaſed, and the ſmall tumour formed by the iris has become almoſt entirely inſenſible. I lately

* Plate II. fig. 6.

ſaw

ſaw a man, 50 years of age, who had a procidentia of the iris, during 10 weeks, in the right eye, of twice the ſize of a millet-ſeed, which he bore with the greateſt indifference, and without any other inconvenience, than a little chronic redneſs of the conjunctiva, and difficulty of moving the eye-ball freely, in conſequence of the friction which the lower eye-lid made againſt the projecting portion of the iris. When the little tumour was touched with the point of the finger it felt hard and almoſt callous. This circumſtance ariſes partly from the conſtriction, which, after ſome time, the lips of the wound, or ulcer, make around the baſe of the protruded portion of the iris, in conſequence of which it is deprived of its natural exquiſite ſenſibility; and partly in conſequence of this tender membrane loſing its vitality, from the induration and calloſity induced upon it, by its long expoſure to the air, and tears.

With reſpect to the treatment of this diſeaſe in its commencement, ſome recommend that the iris ſhould be puſhed back into its ſituation by means of a whalebone probe, and if there ſhould be any difficulty in this, that even the wound or ulcer of the cornea ſhould be dilated, by making an inciſion of a ſufficient length, in the ſame manner as in the reduction of the ſtrangulated inteſtinal hernia. Others adviſe, that the portion of the iris projecting from the

eye ſhould be merely irritated, in order that it may contract and retire; or that the affected eye ſhould be ſuddenly expoſed to a very vivid light, from a hope, that by the forcible contraction of the pupil, the fold of the iris confined between the lips of the wound, or ulcer of the cornea, may return to its poſition. Experience, however, has clearly proved, that all theſe methods are abſolutely uſeleſs, if not dangerous. For, ſuppoſing it were poſſible, by any of theſe methods, to replace the iris in its ſituation, without tearing or injuring it in any manner, as a paſſage would always remain open for the aqueous humour through the wound, or ulcer of the cornea, as at firſt, the iris, when replaced, would deſcend immediately afterwards, and protrude through the cornea, as it did previouſly to the operation.

It cannot be denied that the *procidentia iridis* is a ſerious accident. But whoever conſiders that we are not at preſent in poſſeſſion of any means capable of inſtantly ſuppreſſing, or even of ſuſpending, the diſcharge of the aqueous humour through the wound, and much leſs through an ulcer of the cornea, when either of theſe exceed certain limits, will find that in circumſtances ſo unfavourable, the *procidentia* of the iris, inſtead of being a diſeaſe is rather a fortunate occurrence, and perhaps the only one which can prevent the complete deſtruction of the

the organ of viſion. For the fold of the iris, by inſinuating itſelf in the form of a plug, between the lips of the wound, or ulcer of the cornea, puts a ſtop to the complete evacuation of the aqueous humour, which by being ſpeedily collected anew in the anterior chamber, and no longer able to flow through the cornea, prevents the further protruſion of the iris, ſeparates the reſt of this membrane from the cornea, and by reſtoring the equilibrium between it and the other humours of the eye, prevents the total deſtruction of that organ. This being evident, it muſt be obvious, that any of thoſe methods hitherto propoſed for puſhing back the procidentia iridis, can only be, as I have ſaid, uſeleſs or dangerous.

Conſiſtently with theſe principles, there are two principal indications which the ſurgeon ought to fulfil in the treatment of the *procidentia iridis,* when it is recent; the one, is that of allaying the highly exquiſite ſenſibility of the portion of the iris, which projects out of the cornea; the other, of gradually deſtroying it to ſuch a depth on this ſide the cornea, that without taking away the adheſion which it has contracted with the bottom of the wound, on the ſide next the anterior chamber of the aqueous humour, it may not keep the external lips of the wound, or ulcer of the

the cornea, immoderately ſeparated, and thereby prevent their healing.

Nothing anſwers theſe two indications better, than touching the portion of the iris, projecting out of the cornea, with the antimonium muriatum, or, what is more commodious and expeditious, with th argentum nitratum, ſo as to produce an eſchar of ſufficient depth. And, in order that this may be executed promptly, and with exactneſs, it is neceſſary that an aſſiſtant placed behind the patient's head, ſhould keep the upper eye-lid ſuſpended by means of the elevator of Pellier; and the patient, if he has attained the age of reaſon, ſhould hold the eye-ball ſteady, by fixing it attentively upon one object. While the aſſiſtant gently raiſes the upper eye-lid, the ſurgeon ſhould depreſs the lower with the fore and middle finger of his left hand, and with his right expeditiouſly touch the ſmall tumour formed by the iris, with the argentum nitratum, cut in the form of a *crayon*, and preſs it upon the centre of the protruded portion, ſo as to produce an eſchar of a proper depth. The pain which the patient feels at the moment is very acute; but by immediately waſhing the eye with warm milk, it quickly ceaſes. The cauſtic ſpeedily deſtroys the ſenſibility of the protruded portion of iris, and by producing a ſufficiently deep eſchar, defends it from the

friction of the eye-lids, and the contact of the air and tears. And it is precisely on this account, that after the cauterization, the sense of pricking and constriction of the eye, of which patients so much complain, is not only relieved, but the inflammation also is considerably diminished, and at the same time the copious discharge of scalding tears.

These advantages, as in the case of ulceration of the cornea, continue precisely as long as the eschar adheres to the small tumour formed by the iris. On its exfoliation, which sometimes takes place on the second, sometimes on the third day from the cauterization, all the symptoms above enumerated return; with this difference, that they are less intense and acute than before, and the small tumour of the iris is less elevated upon the cornea, than it was before the application of the caustic. On the reappearance of these symptoms, the surgeon should again have recourse to the argentum nitratum, with the cautions already delivered, and he should repeat it a third or fourth time if necessary, that is, until the protruded portion of the iris be sufficiently depressed below the level of the external lips of the wound, or ulcer of the cornea, so as to be no longer an obstacle to their granulation and cicatrization.

It may be advantageous to repeat here what has been said on the treatment of deep ulcers of the

the cornea. There is, as it has been remarked, when treating on ulcers of the cornea, a certain point beyond which the application of the cauſtic, at firſt highly uſeful, becomes exceedingly injurious, and the eſchar which before allayed the pain afterwards aggravates it, and cauſes the inflammation to return, with nearly the ſame violence as at the commencement of the diſeaſe. This takes place, according to my obſervation, whenever the ſurgeon continues to apply the cauſtic, after the ſmall tumour formed by the iris has been deſtroyed, below the level of the external lips of the wound, or ulcer of the cornea, and the cauſtic tends to deſtroy the granulation which has already commenced. In the treatment of this diſeaſe, therefore, as ſoon as the ſurgeon perceives that the projecting portion of the iris is ſufficiently depreſſed, and that the application of the cauſtic, inſtead of relieving aggravates the diſeaſe, he ſhould entirely deſiſt from the uſe of it, and merely introduce between the eye-lids, every two hours, the vitriolic collyrium with mucilage of quince-ſeed, or that compoſed of the vitriolated zinc, and the white of an egg; and afterwards he ſhould alſo employ the ophthalmic ointment of Janin, morning and evening, lowered by a double or triple quantity of lard. If the ſtimulus produced by theſe applications does not diſturb the proceſs of nature,

the ulcer will be conſtantly found to contract itſelf by little and little, and in the courſe of two weeks to be completely cicatrized.

The adheſion which the protruded portion of the iris contracts during the treatment, with the internal lips of the wound, or ulcer of the cornea, continues the ſame after the formation of the external cicatrix, and conſequently during the reſt of the patient's life. The pupil, therefore, even after the moſt ſucceſsful treatment of the *procidentia iridis*, is found a little inclined towards the cicatrix of the cornea, and of an oval figure. This change of the ſituation and figure of the pupil, however, diminiſhes very little, if at all, the power of diſtinguiſhing, even the moſt minute objects, and injures the viſion much leſs than might naturally be expected; provided the cicatrix of the cornea is not too extenſive, and ſituated preciſely oppoſite the centre of the cornea. And, in the firſt caſe, the viſion is ſtill leſs impeded by it, as the pupil, which, at the commencement of the diſeaſe, was narrow and oblong, and very much drawn towards the wound or ulcer, gradually enlarges after the formation of the cicatrix, and in the courſe of time, forms an oval leſs compreſſed,* and in ſome meaſure tends to occupy the ſituation which it formerly had towards the centre of

* Plate II. fig. 7.

the

the *iris*. This fact has been alſo remarked by Richter.*

The method of treating the *procidentia iridis*, here recommended, is that which I have found more certain and uſeful than any other which has been yet propoſed, not excluding that of removing the ſmall tumour formed by the *iris* beyond the ſurface of the cornea, by a ſtroke of the ſciſſars.

If the perfect ſucceſs of this exciſion correſponded in all caſes to what ſome have promiſed, nothing would unqueſtionably contribute more to the ſpeedineſs of the cure of the procidentia of the iris, than ſuch an operation. But I am convinced, from experience, that this operation can only be executed with the hope of perfect ſucceſs, in that individual caſe, in which the iris has contracted a ſtrong adheſion to the internal lips of the wound, or ulcer of the cornea; and more particularly in that procidentia of the iris of long ſtanding, in which the protruded portion has become in time almoſt inſenſible, hard, and callous, and where its baſe being ſtrangulated between the lips of the wound,

* Obſerv. chirurg. faſcicul. I. page 80. Omni tamen plerumque hoc vitium periculo, vel damno caret, partim cum raro viſui obſit, partim quia ſponte plerumque priſtinam ſuam figuram pupillæ iuduit, citius quidem aliquando, interdum vero tardius. Minor pupilla ſenſim latior fit, oblonga fit rotunda, deorſum tracta ſenſim ad priſtinum locum aſcendit; atque hæc omnia ſponte plerumque fiunt.

or

or ulcer of the cornea, has not only contracted an adhesion with them, but has also assumed the form of a fine pedunele.* Under these circumstances the excision of the inveterate procidentia of the iris is useful, and exempt from all danger, since the prominent portion of it, which has now formed an adhesion internally to the ulcerated edges of the cornea, being removed by a stroke of the scissars, on a level with the external lips of the ulcer, there is no risk of renewing the effusion of the aqueous humour, or of giving room to the protrusion of any other portion of the iris; and one or two applications of the caustic afterwards are sufficient to excite the process of granulation, and heal the ulcer of the cornea. But this is not the case in the recent procidentia iridis, which has not yet contracted an adhesion to the internal lips of the wound, or ulcer of the cornea. In four subjects affected with recent procidentia iridis, after having extirpated the protruded portion of the iris, of the size of the head of a fly, with the curved scissars, although I touched the divided part, as well as the lips of the ulcer of the cornea, immediately afterwards, with the argentum nitratum, I found the next day, not without regret, that another portion of the iris, of the same size

* I have seen a case, in which the small tumour of the iris, from being long compressed between the edges of the ulcer of the cornea, ultimately fell off spontaneously.

as

as the firſt, had made its way through the ulcer of the cornea, and that the pupil, which was exceedingly contracted in it, approached ſtill nearer the ulcer of the cornea. I had, therefore, reaſon to fear that if I had perſiſted in removing the ſmall tumour a ſecond time, it would have appeared again, and always with a greater protruſion of the iris, and ulterior ſtretching of the pupil; I therefore contented myſelf after the firſt experiment, with treating the diſeaſe by the cauſtic, in the manner before recommended; which was attended, in all the four caſes now mentioned, with ſucceſs, except that the pupil having been too much drawn towards the ulcer of the cornea, remained covered more than uſual by the cicatrix.

Before I finiſh this chapter, I ſhall take an opportunity of directing the attention of ſurgeons to a particular ſpecies of procidentia, much leſs frequent indeed than that of the iris, but which, however, is occaſionally met with in practice, to which modern oculiſts have improperly, in my opinion, given the name of the *procidentia of the tunic of the aqueous humour.**

This diſeaſe conſiſts in a ſmall pellucid veſicle, full of water, formed by a very fine membrane, which protrudes from the wound, or

* Chute de la tunique de l'humeur aqueuſe. See Janin, Pellier, Guerin, Gleize, &c. &c.

ulcer

ulcer of the cornea, nearly in the ſame manner as the iris does under ſimilar circumſtances. I have frequently ſeen this ſmall veſicle, full of water, projecting out of the cornea a little after the extraction of the cataract, and ſometimes alſo in caſes of ulcer of the cornea, particularly after the exciſion of the prolapſed iris.

Oculiſts are, for the moſt part, of opinion, that this ſmall pellucid tumour is formed by that ſubtle, elaſtic, tranſparent membrane, which inveſts the cornea internally, and which has been deſcribed by Deſcemet and Demours. As ſoon, ſay they, as the diviſion or eroſion of the cornea has expoſed the thin membrane which lines its internal ſurface, as this pellicle is unable to reſiſt the impulſe of the humours which preſs upon it from behind forwards, it muſt of neceſſity inſenſibly yield, elongate, and ultimately project out of the wound, or ulcer of the cornea, preciſely in the form of a ſmall pellucid veſicle. But how remote this opinion is from the truth, muſt appear to any one who will for a moment reflect upon the following circumſtances. In the 1ſt place, the fine and elaſtic pellicle, deſcribed by Deſcemet and Demours, cannot be ſeparated by any artificial means from the internal ſurface of the cornea, except near the part where the ſclerotica and cornea unite, and as *veſicular procidentiæ* are met

with in every part of the cornea, and in the very centre of it, where this pellicle is not ſeparable and diſtinct from the compact texture of the cornea; it muſt at leaſt be admitted, that the tunic of the aqueous humour is not always that which conſtitutes the diſeaſe here ſpoken of. 2dly. It is an admitted fact, that this *veſicular procidentia* more frequently happens after the extraction of the cataract, than on any other occaſion; in which caſe, as the tunic of the aqueous humour muſt certainly have been divided, to allow of the paſſage of the cryſtalline humour, no one can be of opinion that the pellucid veſicle which projects from the cornea, after this operation, ought to be referred to the diſtenſion or protruſion of the tunic of the aqueous humour. 3dly. If, in caſes of ulcer of the cornea, the ſmall pellucid veſicle ſometimes appears after the exciſion of the prolapſed iris, it is clear, that if it were formed by the tunic of the aqueous humour, it ought conſtantly to appear before that diſeaſe. 4thly. If the ſurgeon remove this *veſicular* body, by a ſtroke of the ſciſſars, on a level with the cornea, a ſmall quantity of limpid fluid is obſerved to ſpirt out in the act of dividing it, without the aqueous humour of the anterior chamber being evacuated; which inconvenience would be inevitable, if this *veſicle* were formed by the fine elaſtic pellicle which is ſaid to inveſt

inveſt the cornea internally. Beſides, although the ſmall pellucid tumour be taken away by exciſion, yet it very frequently happens, that the next day another tumour, exactly ſimilar to that which has been removed, is found in the ſame place. Now if this ſmall tumour were formed by the tunic of the aqueous humour, protruding through the wound or ulcer, it could not be reproduced, as it is, at leaſt in the ſame part of the cornea. Theſe conſiderations have ſatisfied me that what has been commonly imagined to be a *procidentia of the tunic of the aqueous humour*, is in reality nothing more than the protruſion of a portion of the vitreous humour, which, after the extraction of the cataract, either from the too violent compreſſion made upon the eye-ball, during or after the operation, or from the ſpaſmodic action of the muſcles, inſinuates itſelf between the lips of the wound of the cornea, and appears externally, in the form now deſcribed.

The ſame thing happens likewiſe in caſes of ulcer of the cornea, when the aqueous humour being evacuated, a powerful compreſſion has forced a portion of the vitreous humour towards the ulcer ſituated oppoſite the pupil; or when the prolapſed portion of the iris being extirpated, an elongation of the vitreous humour has directly inſinuated itſelf between the edges of the ulcer of the cornea, without paſſing through

the pupil. Hence it is evident why the ſmall pellucid veſicle is formed in both caſes, although the tunic of the aqueous humour has been divided or deſtroyed by the ulcer, and why this veſicle, even after it has been removed on a level with the cornea, very frequently reappears in the ſame place; it is becauſe one or more cells of the vitreous humour forming it being removed, other cells of the ſame humour filled with limpid fluid enter in ſucceſſion between the lips of the wound, or ulcer of the cornea, in the place of the firſt.

The treatment of this ſpecies of *procidentia* conſiſts in removing by exciſion the ſmall pellucid veſicle which emerges from the wound or ulcer, and in replacing the lips of the wound of the cornea in perfect contact immediately afterwards, in order that they may unite as exactly as poſſible. In caſes of ulcer of the cornea, however, immediately after the removal of the veſicle, the ulcer ought to be touched with the argentum nitratum; and in ſuch a manner that the eſchar produced by the cauſtic, may reſiſt a freſh eſcape of the vitreous humour, and the ulcer of the cornea at the ſame time be diſpoſed to granulate and heal.

In this ſpecies of *procidentia*, that which projects out of the cornea is only a fine membrane filled with water, and entirely deſtitute of ſenſibility, the ſeparation of which from the parts contained

contained in the eye is of very little importance; while on the contrary, by its preſence, it produces all the diſadvantages of any extraneous body which might oppoſe the union of a wound, or the granulation and healing of an ulcer. The diviſion of this *veſicular* body, therefore, is clearly indicated, and experience confirms the ſucceſs of it. It is in general ſpeedily removed by a ſtroke of the curved ſciſſars. But if in any particular caſe the ſmall tumour ſhould not project ſufficiently out of the wound or ulcer to be included by the ſciſſars, the intention may be obtained by pricking it with the point of a lancet or cataract needle; for the limpid fluid which it contains being diſcharged, the membrane of which it is formed retires within the lips of the wound, or ulcer of the cornea, and is no longer an obſtacle to the approximation of the former, or the cauterization of the latter.

If it ſhould happen that the day after the exciſion or puncture, the ſmall pellucid tumour ſhould reappear in the ſame part as before, it will be neceſſary to repeat the operation, and to take further meaſures to keep the wound of the cornea in contact; or if there be an ulcer, to make the eſchar adhere more firmly to the bottom and ſides of it, and preſent a more powerful barrier than before to the eſcape of the vitreous humour. In ſuch caſes, therefore,

the ſurgeon ſhould guard againſt every thing with the greateſt poſſible care, which might preſs the vitreous humour towards the wound, or ulcer of the cornea, and particularly the too violent compreſſion of the eye-lids, ſpaſm of the muſcles of the eye, cough, ſneezing, coſtiveneſs, and other ſimilar cauſes, at the ſame time taking care to prevent the progreſs of the inflammation.

Upon the treatment of this ſpecies of pellucid *veſicular procidentia*, the two caſes of Pellier * deſerve to be read, to which, if further proofs were neceſſary, I might add ſeveral others ſimilar to them, which I have met with in conſequence of ulcer of the cornea, penetrating into the anterior chamber of the aqueous humour; the ſucceſs of which has been as complete as in the two caſes deſcribed by the French oculiſt.

Laſtly, the procidentia is a diſeaſe from which the choroid coat is not wholly exempted; I have ſeen and treated this accident, in the perſon of Signor Giovanni Breſſanini, an apothecary of Beſcapè. In conſequence of a violent *acute* internal and external ophthalmia, which was treated at the beginning with repellents, a ſmall abſceſs formed between the ſclerotic and choroid coats, at the diſtance of two lines from the junction of the cornea with the ſclerotica,

* Obſerv. ſur l'œil, p. 350. obſerv. 99, 100.

on

on the inferior hemiſphere of the eye-ball. The ſmall abſceſs burſt, and diſcharged a little denſe and tenacious lymph; a ſmall blackiſh body afterwards protruded from this ulcer of the ſclerotica, which was formed by the choroid coat. The treatment conſiſted in repeatedly touching this prominent portion of the choroid with the argentum nitratum, until it was deſtroyed, and reduced to a level with the bottom of the ulcer of the ſclerotic coat; after which the ulcer healed. This eye remained, however, very weak, and the pupil afterwards contracted, ſo as to be almoſt entirely cloſed.

## Case XLVII.

Angiola Maria Porta, a robuſt country woman, 30 years of age, after having been afflicted with a wandering gout, was attacked with a violent acute ophthalmia in the right eye, which occaſioned the formation of an hypopion, and afterwards an ulcer of the cornea, with a *procidentia iridis*, of the ſize of a fly's head, accompanied with very acute pain in the eye, and a diſcharge of ſcalding tears.

The patient was admitted into the hoſpital on the 25th of May 1795. The ſmall ulcer was immediately cauterized with the argentum nitratum, and in a few minutes the woman found her pain greatly relieved. As the

eſchar did not adhere to the ſmall tumour longer than 24 hours, I continued to apply the cauſtic to it every day until the 8th of June; that is, until the protruded portion of the iris was deſtroyed beyond the external lips of the ulcer of the cornea. Afterwards, I employed the ophthalmic ointment of Janin for the ſpace of 15 days, in which time the ſmall ulcer was perfectly healed.

## Case XLVIII.

Giuſeppe Borghi, of Pavia, a boy 9 years old, was brought into the practical ſchool on the 22d of January 1796, on account of a *procidentia* of the iris, of the ſize of a ſmall lentil ſeed, which had formed itſelf through an ulcer ſituated on the lateral and external part of the cornea of the right eye, accompanied with chronic ophthalmia, edematoſe ſwelling of the eye-lids of that ſide, and excoriation of the tarſi; to all which evils the poor child had been long abandoned by the exceſſive negligence of his parents. Although he could not bear the light with the right eye; he gave no ſigns of pain when the ſmall tumour, formed by the iris, was touched with the point of a probe, in conſequence of this protruded portion being in ſome meaſure callous.

The

The ſmall tumour was touched every day, for a week, with the argentum nitratum; as the eſchar produced upon it did not adhere longer than 24 hours. At the end of this time the *procidentia* of the iris was deſtroyed as far as the bottom of the ulcer of the cornea. On account of the tumefaction and afflux to the eye-lids, I applied, in the mean time, a ſeton in the neck, and purged him frequently with the tincture of rhubarb. In order to accelerate the healing of the ulcer of the cornea, after the protuberant portion of the iris was deſtroyed, as well as the excoriations of the tarſi, I employed, locally, the ophthalmic ointment of Janin, morning and evening, and during the day the vitriolic collyrium with mucilage. In 26 days the boy was perfectly cured, as he could diſtinguiſh with this eye the moſt minute objects; the pupil, however, preſerved an oval figure.

## Case XLIX.

A. Catterina Cartoſi, an inhabitant of Valeggio, aged 21 years, a weak and thin woman, in attempting on the 20th of March 1797 to break a piece of wood, by bending it againſt her knee, a ſplinter ſtruck the left eye, which divided the lateral and external part of the cornea perpendicularly. The iris ſituated behind paſſed through this fiſſure, and appeared externally in the

the form of a blackiſh line, projecting upon the cornea in the direction from above downwards. The eye inflamed greatly, and it was not till the 8th day from the accident that ſhe was brought to the hoſpital, after having been bled.

The acute pain in the eye continuing, I directed a bread and milk poultice to be applied, which gave her relief. I afterwards proceeded to touch this prominent line, formed by the iris, with the argentum nitratum. The eſchar ſeparated a few hours afterwards, and the pain in the eye therefore returned as acutely as before, on which account I was under the neceſſity of giving the patient at night an opiate draught. I repeated the application of the cauſtic for three ſucceſſive days; which was ſufficient to deſtroy the blackiſh line, formed by the iris, projecting upon the cornea. The ophthalmic ointment of Janin was afterwards uſed morning and evening, reduced by a double quantity of lard; by the action of which remedy the ulcer of the cornea contracted and healed, in the direction from the upper to the lower part of the fiſſure. The lower extremity of the wound, however, remained ſtationary, on account of the ſmall portion of the iris correſponding to that part, not being deſtroyed to a ſufficient depth below the external lips of the ulcer of the cornea. I therefore touched this part with the cauſtic twice in the ſpace of three days; and afterwards

applied

applied the ophthalmic ointment, by which it was completely healed. As the perpendicular ſpot remaining upon the cornea, in conſequence of the cicatrix, was ſituated on one ſide of the pupil, and as the latter being drawn towards the cicatrix, allowed a ſufficient opening for the paſſage of the light, it did not prevent the woman from recovering the ſight of the eye.

## Case L.

Signor Mauro R.. of Pavia, 40 years of age, a thin man, in the month of Auguſt 1795, accidentally received a ſtroke with the laſh of a whip in the external angle of the left eye, preciſely at the junction of the cornea with the ſclerotica. The violent contuſion occaſioned a ſmall tumour in this part, with inflammation of the whole eye, which tumour ſhortly afterwards burſt, and allowed a quantity of the aqueous humour to paſs out, and after it a ſmall portion of the iris, of the ſize of two millet ſeeds put together. The relaxation of the conjunctiva near to it, and the turgeſcency of its veſſels formed an elevation in the external angle of the eye, which, in the form of a valve, covered a part of the *procidentia iridis*. It was particularly worthy of remark, that, although the pupil was of an oblong figure, as in all other ſimilar

ſimilar caſes, it appeared more dilated than that of the ſound eye.

Two weeks had paſſed from the time of the formation of the *procidentia iridis*, before the patient conſulted me. He did not at this time complain of much pain in the eye, and notwithſtanding the diſeaſe, frequently went out of the houſe to attend to his affairs.

I ordered that the projecting portion of the iris ſhould be touched with the argentum nitratum; which was repeatedly executed, until the whole of it diſappeared, and the ulcer was diſpoſed to heal; which was accompliſhed in 18 days. The vitriolic collyrium, employed for two weeks more, completed the cure, by perfectly healing the ulcer of the cornea, and reſtoring to the veſſels of the conjunctiva their former vigour. The pupil remained, as uſual, of an oval figure, but from a ſingularity, which I have not met with in any other inſtance, continued, as at the commencement of the diſeaſe, more dilated than that of the ſound eye; on this account, after the patient was cured of the *procidentia iridis*, he ſaw better in the dark with the left than with the right eye.

## Case LI.

A poſtillion, 20 years of age, afflicted from his infancy with ſcrofulous tumours in the neck, and with ophthalmia, was attacked with a violent inflammation of the right eye, which occaſioned an abſceſs and ulcer of the cornea, and afterwards a *procidentia iridis* of the ſize of a ſmall lentil ſeed. At the time I ſaw him, which was five days from the appearance of the *procidentia*, he complained exceedingly on the ſlighteſt motion of the eye-lids. The cure was undertaken on the 11th of January 1792, by touching the ſmall tumour, formed by the iris, with the argentum nitratum, and endeavouring to produce a deep eſchar upon, and within it.

When the eſchar was detached, the cauſtic was again applied and repeated, five times in the courſe of nine days, carefully waſhing the eye each time with warm milk. At this period the portion of the iris, which protruded through the ulcer of the cornea, was deſtroyed, and reduced below the level of the external lips of the ulcer. I now confined myſelf to the application of the vitriolic collyrium, which was dropped into the affected eye every two hours, by which on the 30th of the ſame month the ulcer was perfectly healed. The pupil appeared

peared of an oval figure, but this was not attended with any defect of viſion.

## Case LII.

Giuſeppe Gaggi, of Pavia, a robuſt man, much addicted to wine, being rendered nearly blind by an obſtinate chronic ophthalmia, which had continued 40 days with *procidentia* of the iris, was brought into the practical ſchool of ſurgery on the 6th of November 1795.

There were two diſtinct procidentiæ of the iris, each the ſize of a millet-ſeed, ſituated upon the inferior hemiſphere of the cornea of the left eye, and to complete his misfortune, the cornea of this eye was rendered completely opake by a denſe nebula. Upon the upper hemiſphere of the cornea of the right eye, there was alſo a *procidentia* of the iris, the ſize of the head of a fly, in other reſpects it preſerved its natural tranſparency. The patient complained of intenſe heat in the eyes, but not of acute pain.

On the 6th, 7th, and 9th of November, the prolapſus of the iris of the left, as well as of the right eye, was touched with the argentum nitratum, and a deep eſchar was produced, which, however, did not excite much pain.

On the 10th the eſchar of the right ſide ſeparated, and the *procidentia* of the iris was found very much diminiſhed.

On the 18th, after three more applications of the cauſtic, the two procidentiæ of the iris of the left eye alſo were reduced to a level with the ulcers of the cornea. Being deſirous, in this ſtate of things, to ſtimulate the edges of the ulcers a little by another application of the argentum nitratum, the patient made ſome unuſual contortions, and gave ſigns of acute pain; to relieve which, it was neceſſary to waſh the eyes frequently with warm milk, and to cover them at night with a poultice of bread and milk. This ſufficiently indicated the neceſſity of deſiſting from the uſe of the cauſtic. When the laſt eſchar was detached, I therefore confined myſelf to the uſe of the vitriolic collyrium, which was introduced every two hours.

On the 13th of December, the patient being perfectly cured of the *procidentiæ* of the iris, and ulcers of the cornea, went into the convaleſcent ward. The ophthalmic ointment of Janin was introduced morning and evening, with a view, if poſſible, of diſſipating the denſe nebula of the left eye; but this was not attended with the deſired ſucceſs. The left eye, though freed from the procidentiæ of the iris, remained uſeleſs to him, but the right was preſerved.

CHAP.

## CHAP. XV.

### OF THE CATARACT.

THERE are two methods of treating the cataract, the one by removing the opake cryſtalline, from the viſual axis of the eye, by means of a needle; the other, by extracting it from the eye, by making a ſemicircular inciſion in the baſe of the cornea.

It has long been diſputed which of theſe two methods ought to have the preference; and in the warmth of diſcuſſion, the advantages of the one, and the diſadvantages of the other, have been exaggerated by both parties. Obſervation and experience, however, the great teachers in all things, ſeem to have pronounced in favour of the ancient method of treating the *cataract*, or that of *depreſſion*; not only becauſe *depreſſion* is more eaſily executed than *extraction*, and can be equally employed in every ſpecies of cataract, whether cryſtalline or membraneous, ſolid or fluid; but becauſe *depreſſion* is attended with ſymptoms far leſs violent and dangerous than

than thoſe which very frequently happen after extraction; and if from any accidental cauſe this operation ſhould occaſionally prove unſucceſsful, it may be repeated two or three times upon the ſame eye without any riſk; a circumſtance which *extraction* does not admit of, when that operation has not had the deſired ſucceſs.

Influenced by theſe facts, I have for a conſiderable time laid aſide the method of treating the cataract by extraction, and have applied myſelf entirely to the practice of depreſſion, and I ſee continually great reaſon to be ſatisfied with the choice which I have made. The very frequent occaſions which I have had of performing this operation, have afforded me an opportunity of making ſome uſeful alterations relative to the means which are employed previouſly to its execution; of which I ſhall now proceed to give a detail.

It is eaſy to determine whether the operation can be performed with a proſpect of ſucceſs or not. A favourable iſſue may be expected, whenever the cataract is ſimple, or without any other diſeaſe of the eye-ball, in a ſubject not quite unhealthy or decrepid, and in whom the opacity of the cryſtalline humour has been gradually formed, without having originated from any external violence, or habitual ophthalmia, eſpecially the *internal:* where there has not been frequent

pain in the head, eye-ball, and ſupercilium: where the pupil, notwithſtanding the cataract, has preſerved its free and quick motion, as well as its circular figure, in different degrees of light: and laſtly, where, notwithſtanding the opacity of the cryſtalline lens, the patient retains the power, not only of diſtinguiſhing light from darkneſs, but alſo of perceiving vivid colours, and the principal outlines of bodies which are preſented to him, and where the pupil has that degree of dilatation which it is uſually found to have in a moderate light.

It is not equally eaſy to pronounce concerning that which regards the other part of the diagnoſis; that is, whether the cataract be hard or ſoft, caſeous or fluid; and whether, together with the opacity of the cryſtalline lens, the capſular membrane which envelopes it be alſo opake. All that has been hitherto written and taught upon this ſubject, has not that degree of certainty which can ſerve as a guide in practice, and the moſt experienced oculiſt of the preſent day is not able to determine with preciſion what the nature and conſiſtence of the cataract is, upon which he propoſes to operate,* nor whether the capſule be yet tranſparent or not, although the lens be evidently opake. For

* Mr. Hey ſtates, that he has generally found a dark coloured cataract in old perſons of a firm conſiſtence.

Practical Obſerv. in Surg. page 49.

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it is an indiſputable fact, that the capſule ſometimes preſerves its tranſparency, when the lens does not. The want of accurate notions, however, upon this ſubject does not materially influence the ſucceſs of the operation; as the ſurgeon ought in every caſe to be prepared to employ ſuch means as the particular ſpecies of cataract which preſents itſelf to him may require, during the performance of the operation, whether it be hard or ſoft, accompanied by opacity of the capſule, which inveſts it, or not. The firm cryſtalline cataract undoubtedly admits of being more eaſily removed by the needle from the axis of viſion than any other; and does not riſe again to its former place, if the ſurgeon in removing it from the pupil uſe the precaution of burying it in the vitreous humour. The *ſoft*, the *milky*, or the *membranous cataract*, however, when met with in the operation, may be alſo removed from the pupil, effuſed or lacerated with the ſame needle, without the neceſſity of introducing any other inſtrument into the eye.

With reſpect to the hard conſiſtent cataract, it ſhould be obſerved that the word *depreſſion*, uſed in the ſchools of ſurgery to expreſs the manner in which this operation is executed, readily produces in the mind of the ſtudent an erroneous idea, that this merely conſiſts in preſſing the opake cryſtalline with the needle, from above downwards, until it deſcends below the

pupil. If this were the caſe, as there is not a ſufficient ſpace for firmly lodging the cryſtalline lens, between the corpus ciliare and the iris, it would conſtantly follow, that immediately after the operation, the cataract would riſe up again, either entirely or partially, oppoſite the pupil. But the word *depreſſion*, in this caſe, has a much more extenſive ſignification than that which is commonly given to it. It includes two motions which the ſurgeon makes with the needle; one of preſſing down the opake cryſtalline, the other of burying it in the vitreous humour, by carrying it from before, backwards, out of the axis of viſion. By this precaution only, is the opake lens prevented from riſing again, and in this ſenſe only ought the term *depreſſion* of the *cataract* to be explained and underſtood. There is upon this point a circumſtance noticed by Parè,* which has not been mentioned by any writer, either before or ſince his time; that, after the depreſſion of the cataract, and before the needle is withdrawn, the patient ſhould be directed to turn the eyeball upwards. For by this means, ſays he, the depreſſed cryſtalline, upon which the needle yet reſts, muſt be carried from before, backwards, and buried in the vitreous humour, a circum-

* Livre II. chap. xxii. Et étant ainſi abaiſſée, la lui fait laiſſer, la tenant ſujette de l'aiguille par l'eſpace de dire une paternoſtre, ou environ, de peur qu'elle ne remonte, et pendant faire mouvoir vers le ciel l'oeil au malade.

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ſtance of the greateſt importance to prevent the cataract from riſing again, and which deſerves to be carefully attended to by the young ſurgeon.

Beſides this precaution of lodging the firm cataract, which is to be depreſſed, in the vitreous humour, there is another of no leſs importance to the ſucceſs of this operation. This conſiſts in lacerating the anterior convexity of the capſule of the cryſtalline lens, at the time the latter is depreſſed, ſo that whether the capſule be opake or not, the ſight cannot afterwards be obſtructed by it. For it not unfrequently happens, that thoſe who have not had ſufficient inſtruction or experience in this part of ſurgery, after the needle has been made to penetrate between the anterior convexity of the capſule, which is yet tranſparent and the cataract, remove the opake cryſtalline from the axis of viſion, and leave the anterior portion of the pellucid capſule in its ſituation, which becoming opake a few days after the operation, preſents the appearance of a denſe whitiſh veil behind the pupil, which either entirely, or in part, deprives the patient of the power of ſeeing, and which has very properly received the name of *ſecondary membranous cataract.*

To be more explicit, the moſt common cauſe of failure in the operation for the cataract, whatever be the method of performing it, is not owing to the cryſtalline lens, however denſe it may

be, but to the capſule of the lens, and more particularly its anterior convexity. It is to be wiſhed that the art of ſurgery were in poſſeſſion of ſome eaſy and efficacious means, by which the ſurgeon, in every method of operating, might be able to ſeparate with exactneſs, together with the opake cryſtalline, the entire capſule of the lens from the *zona ciliaris* to which it is attached, an event which occaſionally happens from a happy, but unforeſeen combination of circumſtances. But this fortunate occurrence * is very rare; as the *zona ciliaris*

* Richter Obſ. Chirurg. Faſc. II. page 96. * Quater inſcius, ſaltem inopinatus, extraxi lentem capſula ſua obvolutam. See Janin, Pellier, Gleize, The Edinburgh Eſſays, vol. 5. It once happened to Monro, in diſſecting an eye affected with cataract, to obſerve, after having removed the cornea and iris, that by merely inclining the eye-ball in different directions, the cryſtalline with its capſule ſeparated by its own weight from the *zona ciliaris*, ſo ſlight was the union of theſe parts with each other in this particular and very rare caſe.

Monro's Works, Num. XXV.

* It ſhould be obſerved, however, that this obſervation of Richter's applies only to the extraction of the cataract, for he ſtates immediately afterwards, as will be ſeen by the following paſſage, that the capſule is moſt frequently removed along with the opake lens in the operation of couching. His experiments, however, muſt be leſs deciſive, in as much as they were made upon brutes.

Qui deprimunt cataractam, lentem ſolummodo deprimere ſibi videntur, capſulamque in loco ſuo remanere putant. Ego vero puto, plurimiſque experimentis perſuatus ſum, hac operatione plerumque capſulam cum lente deprimi. Sique itaque deprimitur facile capſula cur non extrahatur? Deprimi autem, ſequentia probare videntur. Sæpiſſime coram auditoribus operationem depreſſionis legitimo modo peregi in oculis ſuillis, diſſectiſque dein illis lentem capſula ſua integra indutam ſemper reperi. Ibid. page 97.—T.

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moſt frequently connects the capſule of the cryſtalline lens ſo cloſely to the vitreous humour around the *annulus* of Petit, that even in diſſecting the eye it is impoſſible to ſeparate the capſule of the cryſtalline lens from the vitreous humour without conſiderable laceration. On account of the extreme difficulty, therefore, of obtaining a complete ſeparation of the membranous capſule of the cryſtalline from its attachments, the ſurgeon in the greater number of caſes has no better means left him to purſue, than to lacerate the anterior convexity of the capſule, through the whole circuit, which correſponds to the pupil in its greateſt degree of dilatation at the moment when he removes the opake lens from the axis of viſion; for with reſpect to the reſt of the anterior convexity of the lacerated capſule, which continues to adhere to the *zona ciliaris* beyond the greateſt diſk of the pupil when it is dilated, although it be opake, or ſhould become ſo after the operation, it can never afterwards prove any obſtacle to viſion, even in the weakeſt light; as it will always remain beyond the margin of the iris.

Nor let it be objected that, although this be obtained, the poſterior capſule of the cryſtalline remains in its ſituation, which, by becoming opake, may occaſion the ſame obſtruction to viſion as the anterior convexity of the capſule, when that

has not been ſufficiently lacerated oppoſite the pupil. For not to inſiſt on the impoſſibility of depreſſing and forcing the opake lens backwards, and deeply into the vitreous humour, without the poſterior convexity of the capſule being alſo lacerated, in order to give paſſage to the cryſtalline lens, experience teaches us that, although this portion of the capſule of the cryſtalline loſe its tranſparency, it is very ſeldom in ſo conſiderable a degree as to injure the ſight materially. This fact is proved by the daily practice of extracting the cataract, in which operation the ſurgeon, after making the inciſion in the cornea, has only to divide the anterior part of the capſule, in order to make the cryſtalline paſs out; without regarding the poſterior convexity of this ſmall membranous bag, which he leaves in its ſituation, without its giving riſe, or but very ſeldom, to any conſiderable diminution of ſight. Anatomy alſo teaches us that there are remarkable differences, in ſeveral reſpects, between the anterior and poſterior portions of the capſule of the cryſtalline lens. One of the principal differences is, that the anterior convexity of this membranous bag is in its natural ſtate, at leaſt three or four times thicker and firmer than the poſterior. The ſecond difference, equally remarkable, is that the delicate poſterior hemiſphere of the capſule

ſule is furniſhed with a ſet of veſſels peculiar to it, and altogether diſtinct from that which is tranſmitted to the anterior convexity of this ſac, as the firſt is formed by the extremity of the *arteria centralis*, which, as if from a centre, diſtributes branches to the circumference, while the anterior hemiſphere of the capſule of the cryſtalline, which, as I have already ſaid, is more compact than the poſterior, receives its blood-veſſels from thoſe of the vitreous humour, which, having paſſed over the *zona ciliaris*, are irregularly incurvated, and ramify upon the anterior ſurface of the capſule. I do not, however, pretend from all this to infer that the poſterior portion of the capſule of the cryſtalline never loſes its natural tranſparency, but only to prove, from obſervation and experience, that even when it does become ſo, it is ſeldom the cauſe of perfect blindneſs. It is proper to repeat, that the principal obſtacle to the favourable ſucceſs of the operation for the cataract, in both methods, ariſes moſt frequently from the anterior convexity of the capſule of the cryſtalline becoming opake, and ſometimes more denſe than in its natural ſtate, or from its being converted into a ſoft and pulpy ſubſtance.

A fact of no leſs importance to be known than the preceding, but which more particularly relates to the operation of the cataract by depreſſion, is that the opake cryſtalline removed from the

the axis of vision and lodged in the vitreous humour, provided it is deprived of its inveſting membrane, gradually diminiſhes in ſize from its circumference towards its centre, and ultimately diſappears altogether. This phænomenon is unqueſtionable, and is proved by a very extenſive ſeries of obſervations made by men of the greateſt accuracy and impartiality, to which I can add three other inſtances of my own upon this ſubject. The firſt was in a nobleman of Pavia, aged 60, who died preciſely a year after he had undergone the operation of couching for a cataract in the right eye; the other was in a woman, 43 years of age, who died three years after the depreſſion of the cataract; and the third in a man, 57 years of age, who died about three years and a half after the ſame operation had been performed. In the firſt of theſe three ſubjects I found the cryſtalline deeply imbedded in the vitreous humour, and reduced to about one third its natural ſize; and in the other two, in which the cryſtalline was deeply ſituated in the vitreous humour below the axis of viſion, there was only the nucleus remaining of a ſize little larger than the head of a common pin.

The depreſſed cryſtalline diſappears even in a ſhorter time, that is, in a few weeks, when it has degenerated into a pultaceous, cheeſy, or milky ſubſtance. And when it is divided, reduced to fragments, and diſſolved in the aqueous humour,

humour, it is finally abſorbed, together with the aqueous fluid, which is continually renewed. This circumſtance relative to the diſſolution and abſorption of the depreſſed cryſtalline, as it is beyond all doubt,* furniſhes a powerful argument for aſſerting, in oppoſition to thoſe who think unfavourably of this method of operating, that there is no ſpecies of *cataract* which may not be cured by *depreſſion*.

This diſſolution and abſorption takes place, not only with reſpect to the cryſtalline lens, but alſo with regard to the membranous particles of the capſule of the cryſtalline; when they are detached from the ſurrounding parts, broken down by the needle, and float freely in the aqueous humour ſuſpended in the form of ſmall flakes, or fall to the bottom of the two chambers of that humour. It is conſtantly obſerved, in this caſe, that theſe membranous fragments of the capſule, depoſited behind the cornea, firſt aſſume the whiteneſs of milk, they then become of a yellowiſh colour, and afterwards liquify and diſ-

* Many celebrated modern ſurgeons might be cited, who have obſerved, and recorded this very important fact; but I ſhall content myſelf with merely quoting the words of Barbette on this ſubject, one of the oldeſt writers. Licet, ſays he, cataracta non ſatis intra pupillæ regionem ſit depreſſa, dummodo in particulas ſit diviſa, perfecta viſio intra ſex aut octo ſeptimanas læpiſſime, licet tota operatio abſque ullo fructu peracta videatur; quod aliquoties experientia edoctus loquor. CHIRURGIA BARBETTIANA, cap. xvi. part I.

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ſolve in the aqueous humour; finally, that they diminiſh in quantity, and diſappear entirely, leaving the cornea and the whole of the eye in the moſt perfect ſtate of tranſparency. Any one may eaſily trace this ſalutary proceſs of nature, ſtep by ſtep, whenever he meets with a caſe, where, either accidentally or by deſign, ſome membranous ſhreds of the capſule of the cryſtalline have been puſhed through the pupil, and depoſited in the anterior chamber of the aqueous humour, that is, between the iris and the concavity of the cornea. I have had frequent opportunities of repeating this obſervation. For in ſeveral caſes of membranous cataract, as I ſhall afterwards ſhow, I have puſhed theſe membranous flocculi into the anterior chamber of the aqueous humour, in ſuch quantity as to fill it on a level with the lower margin of the pupil, ſo as to form the appearance of an hypopion in it. I have obſerved, in theſe caſes, that this collection of flocculi and particles of the capſule confined between the iris and concavity of the cornea, has never occaſioned the patient any inconvenience, that is, either inflammation or pain; and that it is alſo conſtantly diſſolved and removed by abſorption, in a month or little more, and ſometimes ſooner. It is to be obſerved, alſo, that the abſorption of the membranous flakes takes place more rapidly in the anterior than the poſterior chamber

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of the aqueous humour, which may depend on the greater quantity of aqueous humour in the anterior chamber, by which the membranous particles are more eaſily diſſolved than in the poſterior; or may be owing to the greater quantity of abſorbent veſſels in the anterior chamber of the aqueous than the poſterior. If it be true, therefore, as it indiſputably is, that when the membranous cataract, or that formed merely by the opake capſule of the cryſtalline, remaining oppoſite the pupil, after the removal of the lens, is broken into ſmall particles by the needle, and puſhed through the pupil into the anterior chamber of the aqueous humour, it may, by the powers of nature, be diſſolved and removed in the ſame manner as the depreſſed lens is diſſolved, and finally abſorbed; it is evidently proved, I think, that the *membranous cataract* can be alſo cured by the needle, notwithſtanding the aſſertion of thoſe who affirm that this ſpecies of cataract can only be removed by means of extraction.

The apparatus of inſtruments neceſſary for performing the operation of the cataract, by depreſſion, conſiſts of a needle for that purpoſe, and an elevator of the upper eye-lid, which is employed particularly in thoſe cases in which the eye to be operated on is ſmall, deeply ſunk, and where the patient is very unmanageable.

The elevator *of Pellier* * is preferable to all others, as it collects the eye-lid, and raiſes it againſt the ſuperior arch of the orbit, making little or no compreſſion upon the eye-ball.

With reſpect to the needle, moſt proper for the depreſſion of the cataract, experience has taught me, that of the great number which have been propoſed for this purpoſe, we ought generally to prefer that which unites to the greateſt fineneſs, ſuch a degree of firmneſs as will enable it to penetrate the membranes of the eye without bending: ſince I have uſed a very fine needle, I have never had to contend with any conſecutive ſymptoms of importance after the operation of depreſſion, not even with ſuppuration of the membranes of the eye at the place of the puncture. If, indeed, the ſymptoms conſequent on this operation are in proportion as might be expected to the injury and ſolution of continuity, which takes place in the parts of the eye-ball, and particularly of thoſe which are endowed with exquiſite ſenſibility; it is certain that when the needle is of the fineſt kind, if, after it has penetrated the eye, it is merely conducted upon the capſule of the cryſtalline, the lens, and the vitreous humour, parts which are inſenſible, the operation muſt be always attended with very little pain, and the conſequences

* Plate III. fig. 1.

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of the puncture conſtantly, or in the greater number of caſes, of little or no moment.

With reſpect to the form of the needle, I have had an opportunity of obſerving, that the one with a ſtraight point, which is commonly uſed in this operation, is not the beſt calculated for conveniently lacerating the anterior convexity of the capſule of the cryſtalline, and of removing the cataract, at the ſame time, eaſily and expeditiouſly out of the axis of viſion, and lodging t deeply in the vitreous humour. For whatever part of the eye-ball is pierced beyond the *corpus ciliare*, whether at a line from the union of the cornea with the ſclerotica, at two, or two lines and a half, as ſome adviſe, the point of the ſtraight needle, which is made to advance upon the anterior convexity of the capſule paſſes directly againſt the iris, and when it has reached it, preſſes only upon one point of the circumference of the capſule and lens in the manner of a tangent. In the motion which the ſurgeon gives to the point of the needle from before backwards, in order to preſs it firmly upon the centre of the capſule and lens, the preſſure which he applies upon theſe parts is in reality only made by the body of the needle, the point of the inſtrument not penetrating the anterior convexity of the capſule and the cryſtalline lens, until theſe parts have been ſo far removed from the pupil towards the bottom of the eye by the body

body of the needle, that its point, with reſpect to the part of the eye-ball which it has penetrated, has taken a direction from before, backwards. But ſince, as I have ſaid, in removing the capſule and lens from the pupil, the preſſure is not made by the point, but the ſhank of the needle; hence it very frequently happens, that in this movement, the anterior convexity of the capſule, however ſmall its reſiſtance is not lacerated, and the cataract being compreſſed, revolves round the inſtrument, and makes various gyrations above and below the pupil, and cannot after all be firmly fixed by the point of the needle, until after having been by different motions, and repeated preſſure, removed from the pupil towards the bottom of the eye, it can be directly pierced by the point of the inſtrument, which is ſufficiently inclined for that purpoſe from before backwards. But if the cataract be of a milky, ſoft, or cheeſy conſiſtence, and conſequently its capſule flaccid and yielding, the ſhank of the ſtraight needle is only imbedded in the capſule, without opening or lacerating it, and the ſurgeon is then obliged to make ſeveral motions with the needle, in order to remove it from the pupil, to retract the inſtrument, and turn the point of it backwards, that he may pierce the fore part of the capſule and lacerate it. Maître-Jan, ſpeaking of the milky cataract, has made the ſame obſervation.

" Many fruitleſs attempts are frequently made, becauſe the needle glides only upon the membrane which covers the cryſtalline, which, in ſuch attempts always remains entire, unleſs the inſtrument be a little withdrawn, in order to carry the point of it towards the middle of the cataract, for the purpoſe of preſſing it upwards to break this membrane."*

Theſe difficulties are entirely, or for the moſt part avoided, by uſing a very fine needle, moderately curved at the point, ſuch as that which I employ.† The curved extremity of this needle

* Traité des maladies de l'oeil, chap. xiii.

† Plate III. fig. 10. Beſides the reaſons before aſſigned, an accident happened to me in performing the operation for the cataract with a ſtraight needle, badly tempered, which proved to me the advantage of the *curved* needle over the *ſtraight* one. In introducing the needle, through a very firm ſclerotic coat, it happened that its point bent in the form of a *ſmall hook*; which I perceived as ſoon as the inſtrument appeared between the pupil and the capſule of the cryſtalline lens. I proceeded, however, with the operation, and having puſhed the point of the ſmall hook through the capſule into the firm ſubſtance of the cryſtalline lens, I removed both from the axis of viſion with the greateſt facility, and afterwards withdrew the needle very cautiouſly from the eye, without producing any laceration. This circumſtance happened to me in the practical ſchool, in the preſence of a great number of ſtudents, and the event was as favourable as poſſible.

Dr. Morigi, ſenior ſurgeon of the hoſpital of Piacenza, one of the moſt expert and able operators at preſent in Italy, has now adopted the uſe of this curved needle for ſeveral years in

needle is flat upon its convex ſurface, ſharp at the edges, and has a concavity conſiſting of two oblique planes, forming a ſlightly elevated line in the middle, which is prolonged as far as the extreme point of the inſtrument, ſimilar to the curved needle for ſtitching wounds. The handle is marked in the direction correſponding to the convexity of the curved point.*

The needle now deſcribed penetrates the eyeball with the ſame facility as a ſtraight one of an equal degree of fineneſs. When it is cautiouſly puſhed forwards, and is placed between the iris and the anterior convexity of the capſule of the cryſtalline, it is ſituated with its convexity towards the iris, and its point in the oppoſite direction towards the capſule and opake

the depreſſion of the cataract, and with ſo much eaſe and ſucceſs, that he takes every opportunity of recommending and promoting the uſe of it.

* Freytag, in his diſſertation inſerted in the 2d volume of the Chirurgical Diſſertations, publiſhed by Haller, mentions, that his father employed a needle with a curved point for depreſſing a membranous cataract; and he adds, that he extracted the membranous cataract from the eye with the ſame inſtrument. The latter is certainly an exaggeration.

Bell, in the 3d volume of his ſyſtem of ſurgery, Plate XXXII. fig. 4, has given the figure of a curved needle for the depreſſion of the cataract. He ſays, he has frequently thought that the cataract might be more eaſily depreſſed by means of this needle than the ſtraight one; but that he has not yet had ſufficient opportunities of uſing it to be able to ſpeak deciſively of its advantages.

lens,

lens, which it eaſily and deeply pierces by the ſmalleſt motion from before backwards, without the lens having been previouſly removed from the pupil. By means of this inſtrument the ſurgeon readily ſucceeds in lacerating the anterior convexity of the capſule extenſively, in deeply and firmly piercing the opake lens, conducting it out of the axis of viſion and lodging it ſecurely in the vitreous humour. In caſes of the caſeous, milky, or membranous cataract, the ſoft pulp of the cryſtalline may be broken into ſmall parts, by means of the curved point of the needle, with the utmoſt facility, and the anterior convexity of the capſule torn into ſmall flakes; which membranous flocculi may, with equal eaſe, by turning the point of the inſtrument forward, be puſhed through the pupil into the anterior chamber of the aqueous humour, where being precipitated they are, as will be afterwards ſeen, diſſolved, and abſorbed by the powers of nature.

Having premiſed theſe general obſervations on the depreſſion of the cataract, I now paſs to a detail of the operation itſelf, according to the method which I have adopted.

In general the beſt ſurgeons do not now prepare patients indiſcriminately, as was formerly the caſe, for any of the great operations, without manifeſt indications for doing it; and much leſs that which is employed in the caſe of ca-

taract, unleſs the term preparation be applied to the diet which is for ſome days preſcribed to the patient, or the adminiſtration of a clyſter the night previous to the operation. There are, however, in the caſe of cataract, particular circumſtances, whatever be the mode of operating, which oblige the ſurgeon to depart from the general rule, and to ſubject the patient to ſome method of treatment preparatory to the operation. Theſe circumſtances occur in perſons who are dyſpeptic, or hypochondriacal, in women ſubject to hyſterics, and in thoſe whoſe eyes, independently of the cataract, are at the ſame time affected with tumefaction of the edges of the eye-lids, chronic redneſs of the conjunctiva, and a copious gumming.

In caſes of dyſpepſia, hypochondriaſis, and hyſteria, it is proper, two or three weeks before the operation, to order the patient ſtrong, farinaceous, aromatic broths, and at the ſame time ſtomachic bitters and corroborants, of which, the infuſion of quaſſia, in ſuch caſes, is particularly uſeful, either with the addition of a few drops of the vitriolic æther, or without, according to the particular conſtitution and ſenſibility of the patient. As a ſedative and corroborant remedy, one of the moſt uſeful is a powder, conſiſting of a dram of the cinchona, and a ſcruple of the radix valerianæ ſylveſtris taken two or three times

times a day, the patient obſerving, in every other reſpect, a proper regulation of diet. It is a moſt certain and conſtant fact, that the leſs timid and nervous the patient is, the milder are the ſymptoms conſequent on the operation.

Where the edges of the eye-lids are tumefied, incruſted, and gummed, with relaxation of the conjunctiva, chronic redneſs, and weeping of the eye, it is highly advantageous, two or three weeks before the operation, to apply a large bliſtering plaſter to the neck, and to introduce between the eye-lids, morning and evening, the ophthalmic ointment of Janin, with a double or triple quantity of lard; and during the day, the vitriolic collyrium with mucilage of quince-ſeed, every two hours, in order to reſtrain the morbid ſecretion of the ciliary glands, and internal membrane of the palpebræ; to ſtrengthen the conjunctiva and its veſſels, and to reſtore the edges of the eye-lids to their natural ſtate and flexibility, before proceeding to the depreſſion of the cataract.

Every thing being arranged for performing the operation, the ſurgeon ſhould place his patient on a low ſeat, on the ſide of a window, which has a northern aſpect, ſo that the light coming from it may only fall upon the eye which is to be operated on laterally. The patient's other eye being covered, although affected

with cataract, the ſurgeon ought to place himſelf directly oppoſite the patient, upon a ſeat of ſuch a height, that when he is prepared to operate, his mouth ſhall be on a level with the patient's eye. And, in order to give his hand a greater degree of ſteadineſs in the ſeveral motions which the depreſſion of the cataract requires, the elbow correſponding to this hand ſhould be ſupported upon the knee of the ſame ſide, which for this purpoſe he ſhould raiſe ſufficiently by reſting his foot upon a ſtool, and according to circumſtances alſo, by placing a ſmall hard pillow upon his knee. An able aſſiſtant ſituated behind the patient, with one hand fixed under the chin, ſhould ſupport the patient's head againſt his breaſt, and with the other placed on the forehead, gently raiſe the upper eye-lid by means of Pellier's elevator, carefully obſerving to gather the eye-lid againſt the arch of the orbit, without preſſing upon the globe of the eye.

Suppoſing then the eye to be operated on is the left, the ſurgeon taking the curved needle in his right hand, as he would a writing pen, with the convexity of the hook forwards, the point backs, and the handle in a direction parallel to the patient's left temple; ſhould reſt his fingers upon the temple, and boldly perforate the eye-ball in its external angle, at rather more than a line from the union of the cornea

and

and ſclerotica,* a little below the tranſverſe diameter of the pupil, gradually moving the extremity of the handle of the needle from behind forwards from the patient's left temple, and conſequently giving the whole inſtrument a curved motion, until its bent point has entirely penetrated the eye-ball; which is effected with the greateſt readineſs and eaſe. The operator ſhould then conduct the convexity of the needle upon the ſummit of the opake cryſtalline, and by preſſing upon it from above downwards, cauſe it to deſcend a little, carefully paſſing the curved point at the ſame time between the corpus ciliare and the capſule of the cryſtalline lens, until it be viſible before the pupil. between the anterior convexity of the capſule of the lens and the iris. Having done this he ſhould cautiouſly puſh the hook with its point turned backwards towards the internal angle of the eye, paſſing it horizontally between the poſterior ſurface of the iris, and the anterior convexity of the capſule, until the point of the needle has arrived as near the margin of the cryſtalline and capſule as poſſible, which is

* Albucaſis. Tantum recedendum a cornea, quantum ſpecilli cuſpis ſpatii contineat.

F. d'Acquapendente. Si aliqua datur in ſuffuſione operatio tuta, eam forte futuram, ut vel acus prope corneam immittatur, vel ſi aliquanto longius ab illa, non tantum tamen quantum vulgo faciunt. De Chirurg. Operat. cap. xvii.

next the internal angle of the eye, and conſequently beyond the centre of the opake lens. The operator then inclining the handle of the inſtrument more towards himſelf, ſhould preſs the curved point of it deeply into the anterior convexity of the capſule, and ſubſtance of the opake cryſtalline, and by moving it in the arc of a circle, ſhould lacerate the anterior convexity of the capſule extenſively, remove the cataract from the axis of viſion, and lodge it deeply in the vitreous humour, leaving the pupil perfectly round, black, and free from every obſtacle to the viſion. The needle being retained in this poſition for a ſhort time, if no portion of opake membrane appear behind the pupil, which would require the point of the inſtrument to be turned towards it, in order to remove ſuch obſtacle, (for with reſpect to the cryſtalline depreſſed, in the manner now deſcribed, it never riſes again,) the ſurgeon ſhould give the inſtrument a ſmall degree of rotatory motion, in order to diſentangle it eaſily from the depreſſed cataract, and ſhould withdraw it from the eye in a direction oppoſite to that in which it had been introduced, that is, gently inclining and turning the handle towards the patient's left temple.

In every ſpecies of cataract, with conſiderable opacity and denſity of the anterior hemiſphere of the capſule of the cryſtalline, the ſurgeon may very

very eaſily know, during the operation, whether the curved point of the needle, inſinuated between the corpus ciliare and the capſule, is expoſed between the pupil and the anterior hemiſphere of that membrane; or, whether having penetrated into the membranous ſac of the cryſtalline, it has only advanced between the anterior hemiſphere of the capſule and the opake lens. But when the capſule, notwithſtanding the opacity of the cryſtalline lens, preſerves in a great meaſure, or entirely, its tranſparency, it is an eaſy matter for a young ſurgeon, not ſufficiently converſant with this operation, to commit an error, and one of great importance, that is, to remove the cataract from the axis of viſion, and lodge it in the vitreous humour, leaving the anterior convexity of the capſule untouched, which afterwards gives riſe to the *ſecondary membranous cataract.*

To avoid this ſerious inconvenience, every operator ſhould be particularly careful to ſatisfy himſelf before making any movement with the point of the needle for depreſſing the cataract, that the curved extremity of the inſtrument is really, and not apparently, ſituated between the pupil and the anterior portion of the capſule, of which he will be convinced by the degree of light which the convexity of the hook preſents to him, and the facility which he finds in puſhing it forwards through the pupil towards the anterior

anterior chamber of the aqueous humour, and in moving it horizontally between the iris and anterior hemiſphere of the capſule. In the oppoſite caſe he may be certain that the curved point is within the membranous ſac of the cryſtalline, by obſerving that the extremity of the needle is obſcured and covered by a more or leſs tranſparent veil; that he meets with ſome reſiſtance in puſhing it through the pupil into the anterior chamber of the aqueous humour; and that in doing it, this membranous veil which covers the hook is elevated towards the pupil; and laſtly, that the point of the needle is with difficulty conducted horizontally between the iris and the cataract, from the external towards the internal angle of the eye.

The ſurgeon will remedy this inconvenience, by giving a ſlight rotatory motion to the needle, by which the point being turned forwards will paſs through the anterior convexity of the capſule oppoſite the pupil; the point of the inſtrument being then turned backwards again, ſhould be paſſed horizontally between the iris and the anterior hemiſphere of the capſule towards the internal angle of the eye; and having reached this part ſhould be boldly plunged into the capſule, and the ſubſtance of the opake lens, in order to lacerate the former extenſively, and to carry the latter deeply into the vitreous humour

mour out of the axis of vision, and thus complete the operation.

When, without observing this precept, the opake lens is removed, or, more strictly speaking, enucleated from its capsule and lodged in the vitreous humour; and the anterior convexity of this membrane being left entire, is slightly opake, the pupil will appear black, and so free from obstruction to the light as easily to deceive the young surgeon, and induce him to believe that the operation has been properly executed. But persons experienced in this part of surgery, will instantly perceive, that the pupil, under such circumstances, has not that just and perfect degree of blackness which it ought to have, and that this slight dimness is caused by an imperfectly transparent membranous veil, placed between the pupil and the bottom of the eye, which, when suffered to remain, never fails, in process of time, to give rise to the *secondary membranous cataract*. In this case, the expert operator having depressed the opake lens, should immediately turn the curved point of the needle forward, and pass it through the pupil into the anterior chamber of the aqueous humour, in order to perforate this semitransparent membranous veil with the greater certainty; then turning the point of the needle backwards and making it pass as far as possible between the posterior surface

ſurface of the iris and this membrane, ſhould preſs the point of the inſtrument into it and lacerate it from before backwards, making a movement as if he had to depreſs the lens again. In doing this he will have the ſatisfaction to ſee the pupil aſſume the deep black colour of velvet, and a degree of clearneſs which it had not before, although the opake lens had been completely removed from the axis of viſion.

Hitherto I have ſuppoſed the cataract to be of a firm conſiſtence, and to reſiſt the preſſure of the needle. But if the operator ſhould meet with a fluid cataract, the milky for inſtance, which is not an unfrequent occurrence,* when he has paſſed the needle between the corpus ciliare and the capſule, until it appears uncovered between the pupil and the anterior hemiſphere of the membranous ſac of the cryſtalline lens, and the curved point has been cautiouſly advanced between the iris and the margin of the capſule, neareſt the internal angle of the eye; at the moment that the point of the needle is deeply preſſed into the capſule and cataract, a whitiſh milky fluid will be ſeen to iſſue from the capſule, which, extending itſelf in the form of a

* In the greater number of caſes which have fallen under Mr. Hey's care, the cataract has been found ſo ſoft as to permit the needle to paſs through it in all directions.

*Pract. Obſerv. in Surg. p.* 60.

cloud

cloud or ſmoke, will be diffuſed through both the chambers of the aqueous humour, and obſcure the pupil and the whole of the eye. The ſurgeon ſhould not on this account loſe his confidence, but, guided by his anatomical knowledge, ſhould make the ſmall hook deſcribe the arc of a circle from the internal towards the external angle of the eye, and from before backwards, as if he were depreſſing a ſolid cataract, with a view of lacerating, as much as poſſible, the anterior hemiſphere of the capſule, upon which the favourable ſucceſs of the operation principally depends, not only in this, but in every other ſpecies of cataract. For as to the effuſion of the milky fluid into the chambers of the aqueous humour, it diſappears ſpontaneouſly a few days after the operation, and permits the pupil and the whole of the eye to reſume their former natural brightneſs.

The method of operating which the ſurgeon ſhould employ will be little different from this, if, during its performance, he ſhould meet with a ſoft or cheeſy cataract. The anterior convexity of the capſule ſhould be lacerated as much as poſſible oppoſite the pupil, ſo that the opening may equal the diameter of the pupil in its ordinary dilatation. And with reſpect to the pulpy ſubſtance of the cataract, which, in ſuch caſes, remains behind, partly diffuſed in the aqueous humour, and partly ſwimming beyond the

the pupil, all that is neceſſary, is to divide the moſt tenacious parts of that ſubſtance, that they may be more eaſily diſſolved in the aqueous humour, and to puſh thoſe molleculæ of the caſeous ſubſtance of the cryſtalline, which cannot be ſufficiently divided, through the pupil into the anterior chamber of the aqueous humour, in order that they may not be carried oppoſite the pupil, but being ſituated at the bottom of the anterior chamber, may be gradually diſſolved and abſorbed without obſtructing the ſight.

The *ſecondary membranous cataract*, from what has been already ſtated, is not ſo much a diſtinct ſpecies of cataract as a conſequence of the operation imperfectly executed, or which from ſome particular accident has not been attended with complete ſucceſs. For this diſeaſe is moſt frequently formed by the anterior convexity of the capſule of the cryſtalline remaining entire in its ſituation, after the opake lens has been removed, or which has not been ſufficiently lacerated to allow a free paſſage to the light through the pupil.

The *ſecondary membranous cataract* ſometimes appears behind the pupil in the form of membranous flocculi ſuſpended in the aqueous humour of the poſterior chamber, filling up the pupil; at other times it repreſents triangular membranous borders; the baſes of which are attached

tached to the *ciliary zone*, the apices extending oppoſite the pupil. When it conſiſts merely of a ſingle ſmall membranous flake, ſuſpended in the poſterior chamber of the aqueous humour, or fine triangular membranous proceſs, it is not neceſſary on this account to ſubject the patient to a ſecond operation, ſince it does not materially obſtruct the ſight, and in proceſs of time diſappears ſpontaneouſly. But when the *ſecondary membranous cataract* is formed by a maſs of membranous particles, collected in the poſterior chamber of the aqueous humour oppoſite the pupil, in ſuch a degree as entirely or in a great meaſure to cloſe it up (an occurrence which alſo happens when the anterior chamber of the aqueous humour is ſo unuſually ſmall and confined as not to be capable of containing the whole of the membranous flocculi of the capſule, a conſiderable part of which muſt neceſſarily remain behind in the poſterior chamber cloſing up the pupil;) or when the diſeaſe conſiſts in the anterior hemiſphere of the opake capſule, not being ſufficiently lacerated, and adhering to the whole of the ciliary zone; then it becomes neceſſary to have recourſe to another operation. For although, in the firſt caſe, there is ſufficient ground to believe that the maſs of membranous flocculi may in time diſſolve and diſappear; yet it is not proper to leave the patient in a ſtate of perplexity, deprived of ſight

for

for weeks or months, when it can be ſpeedily obtained by a ſafe and eaſy operation; and in the ſecond caſe the operation is abſolutely neceſſary, as the lacerated capſule adhering every where to the *ciliary zone*, ſeldom or ever diſappears; and in time rather increaſes in bulk and becomes more opake than at firſt.

In both theſe caſes of *ſecondary membranous cataract*, the operation is performed in the following manner. In the firſt caſe where the maſs of the particles of the capſule looſened from the ciliary zone cloſe up the pupil, the ſurgeon having introduced the curved needle into the eye with the uſual cautions, and puſhed it into the poſterior chamber, in contact with the maſs of membranous flakes which obſtructs it, ſhould turn the inſtrument towards it, and preſs the whole of the membranous flocculi through the pupil one after another into the anterior chamber of the aqueous humour, precipitating them into the bottom of this chamber, between the concavity of the cornea and the iris. I am convinced from experience that any attempts made to remove theſe portions of membrane from the pupil, although perfectly looſe, and to immerſe them in the vitreous humour, in the ſame manner as the lens, are quite uſeleſs; for no ſooner is the needle withdrawn from the eye, than the whole of the membranous particles, as if conducted by a current, appear filling up the pupil again.

On

On the contrary, when they are puſhed through the pupil into the anterior chamber of the aqueous humour, they can no longer obſtruct the pupil, but are macerated at the bottom of this cavity without occaſioning the patient any inconvenience, and in a few weeks diſſolve and diſappear altogether.

In the ſecond caſe, when the *ſecondary membranous cataract* is formed by the whole of the anterior portion of the capſule, or by ſeveral portions of it adhering to the *ciliary zone*, the ſurgeon having turned the point of the curved needle towards the pupil, ſhould perforate the membranous cataract from behind forwards: or if its borders leave any interval between them, ſufficient to admit the convexity of the inſtrument he ſhould paſs the hook through this opening; then turning the point of it backwards, ſhould conduct it horizontally between the iris and the membranous cataract, as near as poſſible to its attachment with the *zona ciliaris*, and preſſing the point of the hook into it, and into each border of it in ſucceſſion, ſometimes rotating the inſtrument between the fingers, as if to twiſt the portion of capſule round the point of it, he ſhould lacerate it as much as poſſible, in every part of its circumference, ſo as to clear the whole ambit of the pupil; and having collected all the pellicles or flocculi together, ſhould puſh them with the point of the needle

 through

through the pupil into the anterior chamber of the aqueous humour, as has been juſt ſtated. In doing this the greateſt care ſhould be taken by the operator not to touch the iris, for on this precaution principally depends the prevention of any conſecutive ſymptoms of importance, notwithſtanding the length of the operation, and the various movements which it may be neceſſary for him to make with the needle in the eye, in order to lacerate theſe membranes, and puſh them into the anterior chamber of the aqueous humour. And if a portion of the membranous cataract ſhould be found adhering to the poſterior ſurface of the iris, which will be known by this circumſtance, that in ſtretching the ſmall opake membrane with the needle the pupil changes its figure, and from being round becomes oval or irregular; he ſhould proceed with even greater caution than in the preceding caſe, making repeated, but ſmall and gentle movements with the needle in every direction, in order to obtain the ſeparation of it, without endangering the laceration of the iris at its union with the ciliary ligament.

Nor will it be neceſſary to vary, in any manner, the method of operating, when the ſecondary membranous cataract is formed by the poſterior convexity of the capſule having become opake at any period after the operation.

For

For after the cryſtalline is removed this delicate membrane is forced forwards, ſo as to be in contact with the poſterior ſurface of the iris, and is puſhed, as it were, almoſt within the pupil. In order to precipitate it into the anterior chamber of the aqueous humour, and thereby remove the obſtruction, it is only neceſſary to preſs it from behind forward with the point of the needle; which is the more eaſy as the poſterior hemiſphere of the capſule of the cryſtalline looſened from the *ciliary zone*, has no conſiderable adheſion to the concavity of the vitreous humour, except from the very ſmall trunk of the *central* artery.

Nor will the method of operating be different from this, in thoſe uncommon caſes in which the cataract is entirely, or in a great meaſure, *primitively membranous*. I deſign to ſpeak of that particular ſpecies of cataract in which the cryſtalline waſtes, or is diſſolved and diſappears, leaving only its opake capſule, or at moſt a ſmall nucleus not larger than a pin's head within it. This ſingular ſpecies of cataract is moſt frequently met with in children, or perſons who have not exceeded their 20th year, and may be diſtinguiſhed from the others by a certain tranſparency and reſemblance to a ſpider's web, or by a ſort of reticulated ſtructure, interrupted with a whitiſh opake ſpot in its centre or circumference. Any attempt in this caſe to

lodge this membrane in the vitreous humour would prove fruitleſs, as it would riſe again and reappear behind the pupil immediately after the operation. The beſt and ſureſt practice yet propoſed, therefore, is to lacerate it with the point of the curved needle, and to puſh the different particles compoſing it ſucceſſively through the pupil into the anterior chamber of the aqueous humour, where, as it has been before obſerved, it is diſſolved, and in the courſe of three weeks is removed by abſorption.

With reſpect to the after treatment of the operation of couching, it is only neceſſary, in general, that the patient ſhould lie in bed, with his head a little raiſed, and in a dark room, and that the eye operated on ſhould be covered with a piece of dry linen pinned to his night-cap. If he ſhould complain of vivid heat in the eye and eye-lids immediately after the operation, it will be proper to cover them with a compreſs of ſoft lint, dipped in the white of an egg and roſe water, beaten to a froth, with a ſmall piece of alum. And if, notwithſtanding this, the pain and tumefaction of the eye-lids increaſe, it will be neceſſary to cover the eye with bags of emollient herbs, and by theſe, as well as by general remedies, prevent the progreſs of the inflammation.

In perſons of exquiſite general ſenſibility, in thoſe affected with hypochondriaſis or hyſteria, notwith-

notwithſtanding the precautions above mentioned are taken previouſly to the operation, nervous affections are occaſionally excited ſhortly after the operation, as vomiting, violent headach, ſhivering, and coldneſs of the whole body. In theſe caſes I have found nothing allay this perturbed ſtate of the nervous ſyſtem more ſpeedily than a clyſter, conſiſting of 8 ounces of the infuſion of chamomile, and 2 grains of opium diſſolved in it, as the opium, when given by the mouth, is conſtantly rejected.

In very weak and timorous perſons it very frequently happens that on the 3d or 4th day from the operation, they are ſeized with ſymptoms of indigeſtion, accompanied with an increaſe of general heat, eſpecially during the night, as a bitter taſte, nauſea, diſpoſition to vomit, pain in the head, tenſion of the hypochondrium, flatulency, univerſal uneaſineſs, and watchfulneſs. A gentle purgative, and the repeated uſe of clyſters are in general ſufficient to remove all theſe inconveniences, and conſequently prevent the ſecondary ophthalmia.

With reſpect to the diet, this ought, in the greater number of patients, to be of the loweſt kind, and for the firſt 24 hours ſhould conſiſt of broths only. Perſons, however, who are much debilitated, or ſubject to convulſions, and elderly people, are exceptions to this rule, as a very rigorous

gorous diet in ſuch caſes might occaſion a return, or aggravation of the nervous ſymptoms. In theſe inſtances, therefore, it is neceſſary to allow ſome ſoup in addition, and liquid food, which ſhould be given at ſhort intervals.

It is not neceſſary, without particular reaſons for doing it, to open the eye which has been operated on, and conſequently expoſe it to the light before the 3d day after the operation. It is uſeful, however, to ſeparate the eye-lids gently, morning and evening, and to waſh the margins and cilia with a ſponge dipped in pure water, in order to prevent their coheſion.

In caſes of cataract in both eyes, I have learnt from experience, that it is not advantageous to operate upon them immediately one after the other; but that it is better to wait till the firſt is well, before the operation is attempted upon the other; the delay makes little difference in the time required for the cure of both. Upon this point I have had frequent occaſion to remark that, the ſymptoms of the ſecond operation, whether upon the ſame eye, or upon that which has not been operated on, are conſtantly leſs conſiderable than thoſe of the firſt operation. Whether this ariſes from the tranquillity of the patient's mind, from having experienced the little inconvenience conſequent on the operation of couching, or that each eye becomes leſs ſenſible to the puncture of the needle, and the

motions

motions of the inſtrument, after one of them has once ſuffered the irritation produced by it, I am unable to decide. This I know, that I have frequently ſeen in women ſubject to hyſteria, and in hypochondriacs, after the eaſieſt and moſt ſucceſsful depreſſion of the cataract in one eye, convulſive ſymptoms excited either general or confined to the head, and the eye which had been operated on; and theſe, in ſome caſes, ſo violent, as in a ſhort time to leave the pupil dilated and immoveable, with almoſt total inſenſibility of the optic nerve of that ſide; while in the ſame patients, when the other eye has been operated on two weeks afterwards, it has not been followed by any remarkable accident.

If there be no ſymptoms of any conſequence to combat, which is moſt commonly the caſe when the operation is executed in the manner here recommended, in general, on the 10th or 12th day from the operation, the patient is in a ſtate to make uſe of his eye; which, however, he ſhould do with caution, particularly at firſt, that is, without fatiguing it too much, or expoſing it ſuddenly to a vivid light.

I conſider it uſeleſs here to relate any hiſtory of caſes of cataract, which have been perfectly cured by means of couching, and by the method here recommended; as well as to deliver a detail of facts relative to the cure of caſeous or milky cataracts, which, after the operation, have been

diſſolved in the aqueous humour, and then abſorbed by the powers of nature; ſince a great number of theſe facts are to be found in ſurgical works, in which theſe ſubjects are particularly treated. I ſhall only add a few caſes of *ſecondary membranous cataract*, the reſult of which may not be uſeleſs in proving the efficacy of the means which I have propoſed in the treatment of this ſpecies of the diſeaſe; which I do the more willingly, as it is to this point that the arguments of thoſe principally refer, who inſtruct, that in the treatment of the cataract, the operation of *extraction* ought to be preferred to that of *depreſſion*.

## Case LIII.

A peaſant, 50 years old, whom I had couched three years before, with complete ſucceſs, for a cataract of the left eye, requeſted to have the operation performed upon the right. This cataract appeared to be of a favourable kind, that is, firm and reſiſting to the needle, as that of the left eye had been; the pupil moved freely, and the patient, notwithſtanding the diſeaſe, could diſtinguiſh the figures of bodies with this eye. The anterior chamber of the aqueous humour of each eye was almoſt the largeſt I ever ſaw. As the palpebræ of this eye were a little tumefied and gummed, I directed a bliſtering

plaſter

plaſter to be applied upon the neck, and preſcribed the frequent uſe of the vitriolic collyrium for a fortnight; by means of which remedies the eye-lids recovered their natural ſtate.

I then proceeded to the operation, and although contrary to my expectation, I found the cryſtalline ſomewhat ſoft, yet by employing ſome care I was enabled to remove it from the axis of viſion, and to bury it deeply in the vitreous humour, freeing the pupil, as far at leaſt as I could diſcover, from every obſtacle to viſion.

The operation was unattended with any particular accident; but on the 11th day, when the patient was permitted to leave his bed, and to begin to make uſe of his right eye, he told me that he could not ſee ſo diſtinctly with it as he had done the firſt days after the operation. I examined it in a clear light, and found more than half the pupil occupied by a whitiſh irregular body, of a nature evidently membranous. The iris of this eye preſented this peculiarity, that at each motion of the eye-ball it oſcillated and waved backwards and forwards in a peculiar manner.

Without further delay I introduced the needle again into the right eye, and having raiſed this membranous maſs with its point, I found that it was larger than it had appeared to be through

through the pupil. As it was looſened from every attachment, when I had collected the whole with the point of the needle oppoſite the pupil, I preſſed it forwards, and with the greateſt eaſe made it paſs into the anterior chamber of the aqueous humour, which, in this ſubject, as I have ſtated, was very large, to the bottom of which it was immediately precipitated, leaving the pupil perfectly clear. The whole of this membranous ſubſtance was as large as a barley-corn. In the courſe of 25 days, however, it was diſſolved and abſorbed, without having occaſioned, during its lodgment in the anterior chamber of the aqueous humour, any inconvenience or any impediment to the ſight.

From the ſize and figure of this membranous body, I am inclined to believe, that it was the whole, or the greateſt part of the capſule of the cryſtalline, which, by an unuſual combination of circumſtances, had been completely detached from the *ciliary zone*, but which, in making the cataract deſcribe a portion of a circle, in order to lodge it in the vitreous humour, had been ſeparated from the needle, and remaining behind had afterwards reappeared beyond the pupil.

## Case LIV.

A poor woman, very much emaciated, and ſubject to hyſteria, was received into this practical ſchool on account of a cataract in each eye, which ſhe had had for ſeveral years. The colour of the cataract was blue, but interrupted here and there with whitiſh ſtreaks, and there was not that convexity behind the pupil which the opake cryſtalline uſually preſents. The pupil of each eye was moveable, and the patient could diſcern the figures of ſurrounding objects. The circumſtances moſt unfavourable to the operation in this caſe, were the extraordinary ſmallneſs of the eyes, and their being deeply ſunk, and more particularly the extreme narrowneſs of the anterior chamber of the aqueous humour; for with reſpect to the general morbid ſenſibility, I flattered myſelf it might be allayed by the uſe of the cinchona with valerian root for ſome time, and a more nouriſhing and ſtrengthening diet than this poor woman had been accuſtomed to.

After a month's preparation I performed the operation upon the left eye, and having paſſed the needle between the poſterior ſurface of the iris and the cataract, I perceived, on firſt fixing and preſſing the point of it upon the anterior convexity of the capſule, that this membrane

membrane became corrugated, and folded under the inſtrument; in ſhort, that inſtead of the cryſtalline there was only its membranous bag, containing a ſmall quantity of glutinous fluid, which, when diſcharged, was not in ſufficient quantity to render the aqueous humour ſo turbid as to prevent my proceeding with the operation. This diſeaſe would have been denominated by ſome, *atrophy* of the cryſtalline. As there was no cryſtalline lens then, I merely reduced the capſule into ſmall pieces oppoſite the pupil, making as many of the fragments as I could paſs through the pupil into the anterior chamber of the aqueous humour, but I could not ſucceed in depoſiting the whole of them in it, on account of its unuſual ſtraitneſs.

Immediately after the operation, the patient, as frequently happens in caſes of hyſteria, was ſeized with a violent ſpaſmodic affection of the head; but no ſooner was a clyſter of the decoction of chamomile flowers, with two grains of opium adminiſtered, than all her pains ceaſed, nor did any conſiderable inflammation take place in the eye afterwards.

On the 4th day the patient could ſee ſufficiently well; but her ſight afterwards diminiſhed daily, till the 18th day after the operation, when ſhe was completely blind, in conſequence of the pupil being entirely occupied by a whitiſh membranous body, formed by the particles

particles and flakes of the capſule, which I had not been able to paſs into the anterior chamber of the aqueous humour, on account of its extreme ſmallneſs. I then waited a week longer, until the membranous particles and flocculi, which had before been precipitated into the anterior chamber, were nearly diſſolved, and left room for the others. I then introduced the needle again into the eye, and very ſoon freed the pupil from this impediment, by puſhing all the membranous flakes into the anterior chamber, ſo as to fill it on a level with the inferior margin of the pupil. It is a conſtant fact, worthy of obſervation here, that thoſe membranous fragments, which, during the firſt operation, can hardly be caught by the point of the needle, on account of their ſmallneſs, after they have been macerated ſome time in the aqueous humour, ſwell, and allow of being eaſily removed or puſhed forwards with the inſtrument.

After the operation the pain in the head recurred as before, and was relieved in the ſame manner, by means of an opiate clyſter.

About 28 days after the ſecond operation, during which time the woman could diſtinguiſh ſurrounding objects very well, the fragments and membranous flocculi, with which the anterior chamber of the aqueous humour had been filled for the ſecond time, were entirely diſſolved and diſſipated,

diſſipated, leaving the whole extent of the pupil in its ordinary dilatation, black, clear, and free from every obſtacle to the light.

## Case LV.

Bartolomeo Zucchi, of Calvairate, a robuſt man, 45 years of age, affected with cataract in both eyes, underwent the operation in this ſchool of ſurgery on the 28th of April 1793. His eyes were rather ſmall, and ſunk in the orbits.

I operated upon the left eye, in which I met with a ſoft cheeſy cataract. Having broken the ſoft pultaceous ſubſtance of the cryſtalline to pieces, I lacerated the capſule very freely all around the pupil; I then paſſed the whole of the fragments and membranous flakes through the pupil into the anterior chamber of the aqueous humour, which they filled on a level with the inferior margin of the pupil. The operation was not ſucceeded by any remarkable ſymptom, and on the 10th day theſe fragments and flakes were diminiſhed more than one half, and the patient ſaw diſtinctly with the left eye.

I now operated upon the right eye, in which having found a cataract ſufficiently firm, I was able to lacerate with preciſion the anterior convexity of the capſule extenſively, and to lodge the

lens

lens deeply in the vitreous humour. Two weeks after the operation on the right eye, the membranous particles depoſited in the anterior chamber of the left eye diſappeared entirely, and the right eye was alſo capable of bearing the light. The patient was therefore ſoon afterwards diſcharged from the hoſpital perfectly cured in both his eyes.

## Case LVI.

Maria Spigoletti, 40 years of age, had had a cataract in the left eye for two years, and the cryſtalline of the right was becoming rapidly opake, the eye-lids were ſwollen and gummed.

She was purged with the magneſia vitriolata, a large bliſter was directed to be applied upon the neck, and the edges of the eye-lids to be anointed morning and evening with the ophthalmic ointment of Janin.

After three weeks preparation I attempted to depreſs the cataract of the left eye, which I found not diſſimilar to mucus. Having therefore broken the anterior portion of the capſule, as well as the whole of the membranous ſac of the cryſtalline into ſmall pieces through the whole extent of the pupil, I made all the membranous fragments paſs through it into the anterior chamber of the aqueous humour, and ſucceeded ſo as to render it free from every impediment

impediment to viſion. A ſlight inflammation enſued, which was in a great meaſure confined to the eye-lids, but ſubſided in a week, by merely employing at firſt bags of emollient herbs, and afterwards the aqua lithargyri acetati compoſita.

In the courſe of a month all the membranous fragments depoſited in the anterior chamber of the aqueous humour, which had given the appearance of an hypopion, were diſſolved and entirely removed, and the woman having recovered the ſight of this eye was diſcharged from the hoſpital.

## Case LVII.

Giovanni Alberti, a country-man 66 years of age, affected with cataract in both his eyes, was admitted into this practical ſchool of ſurgery for the purpoſe of undergoing the operation.

I attempted it on the left eye, and found the cryſtalline ſufficiently firm to admit of being eaſily removed from the axis of viſion, and immerſed in the vitreous humour. Having accompliſhed this, I perceived, before the needle was withdrawn from the eye, that there was a portion of opake membrane, or a conſiderable part of the anterior convexity of the capſule, which had not been ſufficiently lacerated, floating behind the pupil. I turned the point of the

the needle backwards again, and having carefully broken this membrane as far as the circumference of the pupil admitted, I forced the whole of the fragments through the pupil into the anterior chamber of the aqueous humour. The patient had no bad ſymptom, and ſaw very well with this eye.

Twelve days afterwards I operated on the right eye, and the ſame thing occurred preciſely; I was able to diſlodge the opake lens readily, but a border of the anterior portion of the capſule remained behind, oppoſite the pupil, that is to ſay, the capſule was lacerated with the needle, but not ſo completely as to remove this portion of membranous veil. I therefore turned the point of the needle, as in the firſt inſtance, towards the membranous border, which I lacerated in pieces, and as I detached the portions of it, I puſhed them through the pupil, and precipitated them into the anterior chamber of the aqueous humour; and this I repeated until the whole circumference of the pupil appeared black. About a month after the operation on the ſecond eye, there was no veſtige of membranous particles in the anterior chamber of either eye, and the patient completely recovered his ſight.

## Case LVIII.

Paola Guagnini, of Sale, aged 45, weak, and ſubject to violent attacks of hyſteria, had been affected for ſeveral years with a cataract of the left eye, and ſaw indiſtinctly with the right, from an incipient opacity of the cryſtalline on that ſide. The conjunctiva of both eyes was alſo in ſome degree relaxed, and the eye-lids tumefied and gummed. I therefore directed a bliſtering plaſter to be applied upon the neck, and the vitriolic collyrium to be frequently inſtilled into the eyes for a fortnight; by theſe means the eye-lids ſubſided, and the immoderate viſcid diſcharge ceaſed. On account of the patient's great irritability and weakneſs, I ordered her to take ʒj of the cinchona, and ʒj of valerian root, twice a day, during the whole of this time.

On the 21ſt of November 1795, ſhe ſubmitted to the operation. At the moment the point of the needle was preſſed upon the cataract, in order to remove it from the axis of viſion, it burſt like a ſmall bladder, and a milky fluid guſhed out, which rendered both the chambers of the aqueous humour turbid. Notwithſtanding this I could diſtinguiſh the nucleus of the opake cryſtalline through this cloudy

fluid

fluid, which I conveyed deeply into the vitreous humour; then conducting the point of the needle again towards the pupil I detached and lacerated the anterior hemiſphere of the capſule into ſeveral pieces, and paſſed theſe membranous portions in ſucceſſion through the pupil into the anterior chamber of the aqueous humour.

The patient did not complain of any acute pain during the operation, and paſſed the three following days without uneaſineſs. On the 4th day ſhe was ſeized with a violent hyſterical paroxyſm, with a ſenſe of ſuffocation, agitation of the whole body, delirium, and incoherent talking, which made me fear ſome unfavourable effect on the eye operated upon. There was, however, no alteration, and contrary to my expectation, I found the day after this accident that the pupil was clear, and that the woman could diſtinguiſh the moſt minute objects.

On the 10th day from the operation the patient was in a ſtate to leave her bed, and to begin to uſe her eye in a moderate light.

The maſs of membranous flakes precipitated into the anterior chamber of the aqueous humour, which reſembled an hypopion, began to be diſſipated, and in the ſpace of 32 days the whole ſediment of the particles was entirely abſorbed, and the patient was diſcharged from the ſchool of ſurgery perfectly cured. The un-

interrupted uſe of the cinchona with valerian root, and a few ſpoonsful a day of the infuſion of chamomile, with the aqua ammon. ſuccinat. and the aqua canellæ, had rendered the hyſterical attacks leſs violent and frequent than before.

CHAP.

## CHAP. XVI.

### OF THE ARTIFICIAL PUPIL.

An accident, not frequent indeed, but which, however, occaſionally happens, in conſequence of the operation for the cataract, by *depreſſion* or *extraction*, is that of the contraction of the pupil, which becomes entirely, or in a great meaſure, cloſed, attended at firſt with a great diminution, and afterwards an entire loſs of ſight.

This diſagreeable occurrence is moſt frequently produced by a violent inflammation of the internal membranes of the eye, and particularly of the iris, excited by the operation of depreſſing or extracting the cataract. In ſome particular inſtances, however, it takes place after the operation, but without the inflammation of the internal parts of the eye, or of the iris in particular, having had any evident ſhare in its production; in which caſes, at an indeterminate length of time from the depreſſion or extraction of the cataract, the pupil is obſerved without any evident cauſe to be-

come daily more and more contracted, until it is almoſt entirely obliterated, and that without the patient complaining of any uneaſineſs; in a few inſtances, however, a degree of ſenſibility rather greater than natural is felt in the immediate organ of viſion, even in a moderate degree of light.

In both caſes the pupil in general contracts to ſuch a degree as ſcarcely to admit the head of a ſmall pin, and remains immoveable; the iris around the pupil aſſumes a rugoſe and ſtellated appearance, having an irregular aperture in the middle, behind which, the cataract having been depreſſed or extracted, the bottom of the eye either appears black, or a ſmall ſpot, or whitiſh ſhade is obſervable, if, after either of theſe operations, a portion of the anterior convexity of the capſule of the opake cryſtalline lens has accidentally remained behind, and contracted an adheſion to the iris.

Some ſurgical writers have been led from theory to ſuppoſe, that when this morbid contraction of the pupil is derived from an exceſſive diſtenſion of the veſſels of the iris, in conſequence of violent inflammation of this membrane, it might be remedied by the uſe of local reſolvent and corroborant applications, and at the ſame time revulſives, as local and general bleeding, purgatives, bliſters, and a ſeton in the neck. On the other hand, they have thought

that

that emollients, and external as well as internal antiſpaſmodic remedies, would be uſeful, in caſes of conſtriction of the pupil produced by a ſpaſm of the iris, and an increaſed morbid conſenſual ſenſibility of the immediate organ of viſion with that membrane. But however plauſible theſe indications, in the treatment of the contracted pupil, may ſeem, experience has ſhown their inefficacy, and has fully convinced us that this diſeaſe can only be remedied by making an artificial aperture in the iris, which may perform the office of the natural pupil.

Cheſelden, as far as I know, was the firſt who ventured to propoſe and make a diviſion of the iris, with the intention of forming an *artificial pupil*. He introduced a couching needle, with a cutting edge on one ſide only, through the ſclerotic coat into the eye, at the diſtance of a line and a half from the cornea; then perforating the iris on the ſide next the external angle, and carrying the point of the needle through the anterior chamber of the aqueous humour, until it reached the ſide next the noſe, he turned the cutting edge backwards, and retracting it, divided the iris tranſverſely.

It has been ſaid that this operation has had the happieſt ſucceſs; but Janin* has aſſured

* Mémoires ſur l'œil, page 182, 183.

us, that having performed it in two inſtances with the greateſt care, no advantage was derived from it; for after the ſymptoms produced by the operation had ſubſided, he found that in both patients the tranſverſe opening made in the iris with the cutting edge of the needle had reunited and healed. The ſame thing nearly happened to Sharp,* long before Janin, "for," ſays he, "I once performed this operation with tolerable ſucceſs, but a few months afterwards the very orifice I had made contracted and brought on blindneſs again."

Janin, in uſing Daviel's ſciſſars for the extraction of a cataract, accidentally included the iris at the ſame time with the cornea, and divided it from below upwards, on the ſide of the pupil, which inſtructed him, as he expreſſes it, that the perpendicular diviſion of this membrane, on the ſide of the pupil, was the only effectual method of preventing the lips of the wound made in the iris from healing, and conſequently of eſtabliſhing an *artificial pupil.* It was this circumſtance which led this oculiſt to invent a method of operating, and to propoſe as the beſt means of forming an artificial pupil, that of opening the cornea, as is practiſed in the extraction of the cataract; and afterwards of dividing the iris with the

* Operations of Surgery, chap. 29.

ſciſſars

ſciſſars from below upwards, near the pupil on the ſide next the noſe; for in doing it on the external ſide, he aſſerts, that he had obſerved it to give riſe to a ſtrabiſmus, in conſequence of the too great divergency of the optical axis.

In the ſmall number of caſes of contraction of the pupil, which has fallen within my obſervation and practice, ſupervening to the operation for the cataract, by extraction or depreſſion, I could never perſuade myſelf to open the cornea, in order to make the perpendicular diviſion of the iris, with the ſciſſars propoſed by Janin, or any other, by means of the knife, being aware of the frequent ſerious accidents which accompany the opening of the cornea, in caſes where the eyes have been affected after the firſt operation with violent internal ophthalmia, ſpaſm, or a morbidly increaſed ſenſibility of the immediate organ of viſion. Nor could I ever induce myſelf to divide the cornea again, upon which, after the extraction of the cataract, there had remained an irregular cicatrix; and I have been ſtill leſs inclined to do it, knowing that it is not ſo eaſy a matter as ſome may perhaps imagine, to divide the iris with the ſciſſars, when it has become flaccid from the diſcharge of the aqueous humour.

I have more than once had occaſion to ſee a portion of the margin of the iris two lines in extent, ſeparated from the ciliary ligament, without

without laceration of the body of this membrane, in conſequence of blows upon the eyeball; and that at the part where the iris was detached from the ligamentum ciliare there remained, during the reſt of the patient's life, an oval fiſſure, which might, in all theſe caſes, have performed the office of an *artificial pupil*, if the immediate organ of viſion and the cryſtalline humour had not been too much injured by the violence of the ſtroke. I remember in a caſe of procidentia iridis, from a ſmall ulcer of the cornea, where the iris was greatly ſtretched, in conſequence of a conſiderable portion of it projecting out of the eye and having contracted an adheſion with the margins of the ulcer of the cornea, that this membrane, inſtead of being lacerated in its middle, was detached for a certain extent of its circumference from the ciliary ligament, producing an artificial pupil in that part, which was very uſeful to the patient after the *procidentia iridis* was cured. In depreſſing a cataract likewiſe, I have had the misfortune of ſeeing a ſimilar detachment of the margin of the iris from the ciliary ligament occur, from my having puſhed the opake cryſtalline a little inadvertently againſt the internal margin of this membrane, at the time that it was rolling obſtinately round the point of the ſtraight needle, without my being able to catch it, in order to lodge it deeply in the vitreous humour and de-

preſs

preſs it. In different diſſections of the eye likewiſe, I have very frequently had an opportunity of obſerving, that on taking hold of the iris with the forceps, not only at a ſmall diſtance from its greater circumference, but alſo at the very edge of the pupil, this membrane, although certainly of the moſt delicate texture, inſtead of lacerating in the middle, has rather ſeparated at its union with the ligamentum ciliare.* Laſtly, it is beyond doubt, that the iris is a membrane entirely diſtinct from the choroid coat, and has a peculiar kind of connection, though very ſlight, with the ciliary ligament, independently of the union of the choroid coat with this ligament.

All theſe conſiderations collectively, but particularly that of the weak attachment of the iris to the ciliary ligament, and conſequently of

* Guerin appears to me to have been better acquainted with this important circumſtance, of the eaſy detachment of the iris from the ciliary ligament, than any other modern oculiſt. "*The ſeparation of the iris from the ciliary ligament is eaſily effected; an obſervation which ought never to be loſt ſight of in the extraction of the cataract, for by forcibly extracting a large cryſtalline the iris might be entirely, or in part, detached and cauſe ſerious injury, loc. cit. page* 218." All the advocates for extraction caution us, in caſes where the membranous cataract adheres to the iris, to draw this ſmall opake membrane gently, otherwiſe there is a riſk of ſeparating the iris from the ciliary ligament; this accident being conſidered as more probable than the laceration of the ſubſtance of the iris.

the greater facility of ſeparating the margin of the iris from the ligament to which it is united, than of lacerating the membrane itſelf, induced me to attempt a new method of making the artificial pupil in thoſe caſes, in which, after the extraction or depreſſion of the cataract, the natural pupil might be too much contracted or obliterated; which method of operating conſiſts in ſeparating the outer edge of the iris from the ciliary ligament, for a certain extent, without previouſly dividing the cornea. The event anſwered my expectation, as will appear from the annexed caſes. The following is a detail of the mode of performing this operation.

The patient being ſeated, and there held, as in the operation for the cataract, with a ſtraight couching needle, not the thick one, which is uſed by the greater part of ſurgeons, but a very fine one,* to which I give the preference, the ſclerotic coat is perforated at the external angle of the eye, about two lines from the union of the tunica ſclerotica with the cornea, and the point of the needle is made to advance as far as the upper and internal part of the margin of the iris, that is, on the ſide next the noſe. The inſtrument is then made to pierce the upper part of the internal margin of the iris, cloſe to the

* Plate III. fig. 11.

ciliary

ciliary ligament, until its point is juſt perceptible in the anterior chamber of the aqueous humour; I ſay juſt perceptible, becauſe that part of the anterior chamber being very narrow, if the point of the needle be made to advance ever ſo little before the iris it muſt paſs into the ſubſtance of the cornea. As ſoon as the point of the needle can be ſeen in the anterior chamber of the aqueous humour, it ſhould be preſſed upon the iris from above downwards, and from the internal towards the external angle, as if with a view of carrying the inſtrument in a line parallel to the anterior ſurface of the iris, in order that a portion of its margin may be ſeparated from the ligamentum ciliare. This ſeparation being obtained, the point of the needle muſt be depreſſed, in order to place it upon the inferior angle of the commenced fiſſure, which may be prolonged at pleaſure, by drawing the iris towards the temple, and by carrying the inſtrument from before backwards, in a line parallel to the anterior ſurface of the iris, and the greater axis of the eye.

Having done this, if the bottom of the eye, beyond the artificial pupil, does not appear obſtructed by any opake body, the needle may be withdrawn from the eye entirely. If, however, any portion of the opake capſule preſent itſelf behind the new pupil, which has remained after the depreſſion or extraction of the cataract, this

this ſmall opake membrane, being broken in pieces with the point of the needle, muſt be made to paſs before the artificial pupil, and depoſited in the anterior chamber of the aqueous humour, where, as I have ſhown in the preceding chapter, theſe membranous fragments and flakes of the capſule are gradually diſſolved and abſorbed with the aqueous humour, which is inceſſantly renewed.

In conſequence of the detachment of the iris from the ciliary ligament, it conſtantly happens, that the aqueous humour is rendered more or leſs turbid by the effuſion of a ſmall quantity of blood into it; but this diſcoloured fluid is afterwards abſorbed, and the eye recovers its former tranſparency.

During the operation the patient complains of much more uneaſineſs than in the depreſſion or extraction of the cataract; nor can it be otherwiſe, ſince by ſeparating a portion of the margin of the iris from the ciliary ligament, ſome of the filaments of the ciliary nerves which paſs through it to be diſtributed to the iris muſt be ſtretched and lacerated. The ſymptoms which enſued from this operation in the two caſes, which I have related, were neither of long continuance nor alarming. From ſome experiments made upon the dead ſubject, I am of opinion, that the curved needle which I employ for the depreſſion of the cataract, may

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be alſo preferable to the ſtraight one in the formation of the artificial pupil; which I intend to aſcertain on the firſt favourable opportunity.

## Case LIX.

Some years ago, I performed the operation for the cataract before a number of ſurgical ſtudents, upon the left eye of a countryman of Borgo S. Siro, 50 years of age; it was at the time when I uſed the ſtraight pointed needle. In the act of depreſſing the cryſtalline, I found ſome difficulty in making a firm preſſure upon it with the inſtrument, round the point of which the opake cryſtalline, while rolling, was carried ſidewiſe againſt the margin of the iris next the noſe, ſeparated this membrane for a certain extent from the ciliary ligament, and was ready to paſs into the anterior chamber of the aqueous humour. I retracted it in the beſt manner I could, and notwithſtanding a little turbidneſs produced by the effuſed blood, after ſome attempts, I caught the firm cryſtalline with the point of the needle, and buried it deeply in the vitreous humour out of the axis of viſion. The eye was merely covered with a dry compreſs, and the patient was put to bed.

Towards the evening of the ſame day, the patient felt conſiderable pain and heat in the eye.

eye. I ordered him to loſe blood from the arm plentifully, and the eye to be covered with bags of gauze filled with emollient herbs boiled in milk. The following day he was purged with cryſtals of tartar, and confined to a rigorous diet. The eye-lids and conjunctiva, however, were conſiderably ſwollen until the 5th day, and it was therefore neceſſary to repeat the bleeding; the tumefaction afterwards gradually ſubſided, and on the 14th day had entirely diſappeared.

Upon examining the eye attentively, I found that the aqueous humour had not yet regained its former tranſparency, that the natural pupil, which was exceedingly contracted and almoſt obliterated, was removed from the internal towards the external angle of the eye, by the depreſſion of the portion of the iris, which had been ſeparated from the ciliary ligament; that, laſtly, at the part where the ſeparation had taken place there was an oval fiſſure two lines and a half in extent, through which the patient could diſtinguiſh objects ſufficiently well. In two weeks more the eye recovered its natural tranſparency. There being a cataract in the right eye alſo, I performed the operation upon it a few days afterwards, and with the beſt poſſible ſucceſs.

CASE

## Case LX.

Maria Guerini, an inhabitant of the Genoese mountains, a strong woman, 45 years old, but occasionally subject to rheumatism, which affected her sometimes in the back, at other times in the neck and head, had for a long time lost the use of her left eye, in consequence of cataract, and finding that she was likely to experience a similar misfortune also in the right, she was admitted into this school of surgery to undergo the operation.

I depressed the cataract of the left eye with success, and all went on very well till the 4th day, when the patient was suddenly seized with a ptyalism, rheumatism in the neck and the whole of the left side of the head, with acute pain, violent inflammation, and swelling of the eye-lids and ball of the eye; the conjunctiva was tumid and prominent as in the *chemosis*. I ordered blood to be drawn copiously from the patient's foot, as well as locally by means of leeches, and I directed a blister to be applied upon the neck. She was repeatedly purged with a grain of tartarized antimony dissolved in a pint of the decoction of the radix tritici repent. and during the day she made use of a tepid infusion of elder flowers. The eye was fo-

mented with ſmall bags of emollient herbs. The inflammation both of the external and internal parts of the eye was ſuch that an hypopion ſeemed inevitable. This ſtate of perplexity continued a week, when the rheumatiſm and ophthalmia gradually diſappeared. The patient, however, had no more ſight with the left eye than before the operation. The pupil was ſo much contracted as to appear obliterated. I did not think it proper to meddle with the eye again at that time, but adviſed the patient to return to the hoſpital in a few months, which ſhe did.

The patient having been purged with ſmall doſes of the antim. tart. and confined for ſome days to a proper diet, was ſubjected to the operation for the artificial pupil. Having pierced the ſclerotic coat with a very fine ſtraight needle, I paſſed the point againſt the ſummit of the margin of the iris next the noſe, and as ſoon as I could juſt diſcern the point of the inſtrument I preſſed it downwards, and drawing the iris towards the temple, I ſeparated a portion of its margin from the ciliary ligament, and I continued to do this, deſcending to the extent of two lines and a half; I then withdrew the needle from the eye. The woman gave ſigns of acute pain, and the aqueous humour was rendered a little turbid.

As ſoon as ſhe was put to bed I ordered blood to be drawn from the foot, and the eye to be

covered with bags of gauze, filled with emollient herbs boiled in milk, and I directed an emulſion with twelve drops of the tincture of opium, to be taken at bedtime. She paſſed a comfortable night.

There was afterwards a ſlight inflammation of the conjunctiva and eye-lids, which was ſubdued in a few days by emollient applications only, and on the entire ceſſation of the inflammatory ſtage, the aqua lithar. acet. comp. was employed with advantage.

On the 11th day from the operation I could examine the eye commodiouſly. The aqueous humour had not yet entirely regained its perfect clearneſs. The perpendicular fiſſure formed between the internal margin of the iris and the ciliary ligament, performed the office of a pupil; by which the woman diſtinguiſhed the ſurrounding objects. After a months convaleſcence, the obſcurity produced by the blood effuſed into the aqueous humour was diſſipated, and the woman left the hoſpital cured.

## Case LXI.

A mendicant who had loſt his left eye from the extraction of a cataract, in one of the hoſpitals of Piedmont, and the pupil of whoſe right eye was ſo contracted, after a violent inflammation, as ſcarcely to admit the head of a

ſmall pin, and was therefore of little uſe to him, was brought into this practical ſchool of ſurgery, in conſequence of a fall upon the ice, by which he had diſlocated his left hand. After he had recovered from this accident, I propoſed to him to make ſome attempt to better his ſight, to which he aſſented.

Having introduced a ſtraight needle into the right eye, as in the operation of couching, I paſſed the point of it to the internal and ſuperior margin of the iris, which I pierced as near its edge as poſſible; then partly by preſſing the iris from above downwards, and partly by drawing it towards the temple, I ſeparated it from the ciliary ligament to the extent of more than two lines; after which I withdrew the needle, leaving the aqueous humour ſomewhat turbid.

In the act of detaching the iris from the ciliary ligament, the patient gave ſigns of exquiſite pain, but as ſoon as the eye was covered with a ſmall bag of gauze filled with emollient herbs boiled in milk, he became eaſy.

On the 3d day the eye-lids and conjunctiva were conſiderably inflamed. He was bled largely, and purged with the cryſtals of tartar; and the emollient applications were continued. On the 10th day the acute ophthalmia was diſſipated, and was ſucceeded by that from local debility, which was removed by means of the vitriolic collyrium, with mucilage of quince ſeed.

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On the 20th day from the operation I found that the artificial pupil perfectly anſwered the intention for which it had been made; as the patient could diſtinguiſh objects ſufficiently well. In leſs than a month afterwards the ſlight tinge which the aqueous humour had received from the blood entirely diſappeared.

## Case LXII.*

In the year 1788, a woman came to me who had had a cataract extracted from the left eye. The pupil had cloſed, in conſequence of a violent inflammation, which, according to her account, continued 50 days. She had been deprived of the right eye in her infancy, by a ſuppuration of the cornea after the ſmall-pox. Under theſe circumſtances, there was no other means of reſtoring ſight to this unfortunate woman, than by the formation of an *artificial pupil* in the left eye, which was executed in the following manner.

* This caſe has been communicated to me by Signor *Franceſco Buzzi*, a very able ſurgeon and oculiſt of Milan, already known as an anatomiſt by his diſcovery of the *yellow ſpot* at the bottom of the eye, ſince deſcribed by *Soemmerring*. Perſuaded of the imperfection of the common methods of making the artificial pupil, he had for a long time adopted and practiſed the new mode of operating which is here deſcribed.

The patient being placed in a chair, an aſſiſtant, ſituated behind, held the head, ſupported againſt his breaſt, by placing his right hand under the chin. With the fore and middle fingers of his left hand, he elevated the upper eyelid of the left eye, while I in the ſame manner depreſſed the lower. With a ſpear-pointed needle in the right hand I pierced the ſclerotic coat at about the diſtance of two lines from the circumference of the iris, and afterwards puſhing the inſtrument forwards, I penetrated the iris towards its upper part, about a line from the contracted pupil; and after having paſſed the needle in a direction parallel to the anterior ſurface of the iris, I inclined its point downwards, and at the ſame time preſſed it backwards towards the centre of the vitreous humour, ſeparating the iris forcibly at the upper part, for at leaſt a third part of its circumference. This I executed with as much quickneſs as in the depreſſion of the cataract, otherwiſe the blood which is diſcharged from the ruptured veſſels of the iris, fills the anterior chamber, and prevents the iris from being ſeen; and therefore, if this precaution is neglected, the operation may be rendered imperfect, or perhaps even uſeleſs.

A few hours afterwards the patient felt a painful tenſion in the eye-ball, which extended to the orbit, the cheek, and one half of the head. I now employed the general remedies, in order

to

to prevent a violent inflammation. After 35 days confinement to bed, the blood, extravaſated in the anterior chamber, was entirely removed; and I could perceive that this detached portion of the iris was ſo far removed towards the temple, that at the part where it had been ſeparated there was a large oblong *artificial pupil.* The patient was afterwards able to walk freely by herſelf, and to read and write with the aſſiſtance of cataract ſpectacles.

I have hitherto ſpoken of the artificial pupil, in caſes where the natural pupil is unuſually contracted or obliterated, in conſequence of the operation for the cataract.

I have not much difficulty in perſuading myſelf that that ſpecies of contraction of the pupil, which is accompanied with an adheſion of the anterior convexity of the capſule of the opake cryſtalline, may be alſo remedied by means of the needle. For, beſides a very conſiderable number of caſes recorded by authentic writers on theſe ſubjects, I might relate ſome of my own, relative to the cataract, complicated with conſiderable contraction and immobility of the pupil, which have been ſucceſsfully diſplaced by the needle, ſo that after the operation, the pupil, which had been contracted and immoveable, has recovered its natural ſize

and mobility. But if even, in ſome particular caſes, the adheſion of the anterior convexity of the capſule of the opake cryſtalline to the poſterior ſurface of the iris were ſuch as to elude every poſſible attempt to ſeparate it by means of the needle, I am of opinion that it could not be productive of any other conſequence than that of ſeparating the iris for a certain part of its circumference from the ciliary ligament, and conſequently of producing an artificial pupil.* The elucidation of this point muſt, however, depend upon further obſervation and experience, as I have propoſed to aſſert nothing upon theſe ſubjects which has not been dictated by practice, and confirmed by a ſufficient number of facts.

* It is lately aſſerted that, in this particular caſe, the celebrated oculiſt Demours has fortunately ſucceeded in making an artificial pupil, by piercing the cornea and iris with a biſtoury, near the ſclerotic coat, and removing a portion of the iris, with the ſciſſars, of the ſize and figure of a ſorrel-ſeed, and that without at all diſplacing the ſound and tranſparent cryſtalline.

## CHAP. XVII.

### OF THE STAPHYLOMA.

That diſeaſe of the eye-ball is termed ſtaphyloma, in which the cornea loſes its natural tranſparency, is elevated upon the eye, and gradually projects beyond the eye-lids in the form of an oblong tumour of a whitiſh or pearl colour, which is ſometimes ſmooth, at other times tuberculated, attended with a total loſs of ſight.

This diſeaſe not unfrequently attacks infants a little after their birth, and is moſt commonly a ſequela of the puriform ophthalmia; or it appears in conſequence of the ſmall-pox, and what is extraordinary, never during the eruptive or ſuppurative ſtage of that diſeaſe, but on the deſiccation of the puſtules, and even after the cruſts have deſquamated.

In a great number of caſes, when the ſtaphyloma has arrived at a certain elevation upon the cornea, it becomes ſtationary, or only increaſes in exact proportion with the eye-ball; in others

others the ſmall tumour gradually increaſes in all its dimenſions, and in ſuch a diſproportion, with reſpect to the reſt of the eye-ball, that it ultimately projects conſiderably beyond the eye-lids, occaſioning great uneaſineſs and deformity.*

This diſeaſe is juſtly ranked among the moſt dangerous to which the eye-ball is ſubject; ſince to the total and irremediable loſs of ſight which accompanies it, are added the evils which neceſſarily ariſe from the augmentation and protuberance of the ſtaphyloma, when the tumour

* I had lately occaſion to ſee a ſingular diſeaſe of the cornea, in a woman 35 years of age, which if it be not referable to the ſtaphyloma, I do not know in what claſs of diſeaſes to place it. The eyes were naturally prominent; the cornea of each ſide, without any evident cauſe, became elevated in the centre and gradually projected outwards, ſo that it no longer formed a regular ſegment of a ſphere applied upon the ſclerotica, but a pointed cone. When the cornea was viewed ſidewiſe it reſembled a ſmall tranſparent funnel with its baſe applied upon the ſclerotica. In particular motions of the eye-ball, the point of this cone appeared rather leſs tranſparent than its baſe, in others not ſo; but even where it appeared leaſt tranſparent, it was not in ſuch a degree as to preſent any conſiderable obſtacle to the ſight. When the eyes were placed directly oppoſite a window, the apex of the cone reflected the light ſo powerfully, that it had the appearance of a luminous point: and as this took place preciſely oppoſite the pupil, which was now contracted, the woman could only ſee objects diſtinctly in a moderate light, in which the pupil was ſufficiently dilated; in a ſtrong light her viſion was weak and confuſed.

of

of the cornea has acquired ſuch a magnitude as not to admit of being encloſed and covered by the eye-lids. For in ſuch caſes, the continual expoſure of the eye-ball to the contact of the air, and the particles floating in it, the friction which the cilia make upon it, and the inceſſant diſcharge of tears upon the adjacent cheek, are cauſes ſufficient to occaſion the eye to become gradually painful and inflamed, and ſympathetically to affect the ſound one; and finally to produce an ulceration of it, together with the lower eye-lid and the cheek upon which it reſts.

It has long been the opinion of ſurgeons, that in the formation of the ſtaphyloma, the cornea yields to the diſtenſion produced by the turgeſcence of the proper humours of the eye, in the ſame manner, nearly, as the peritoneum yields to the preſſure of the viſcera contained in the abdomen when an inteſtinal hernia is formed. Richter * has oppoſed this theory, by remarking that the ſtaphyloma is moſt frequently formed without its having been preceded by any of thoſe morbid prediſpoſitions which are generally regarded as capable of weakening the texture and elaſticity of the cornea; that the cornea, degenerated into ſtaphyloma, acquires a much greater thickneſs than

* Obſerv. Chirurg. Faſcicul. II.

that

that which it poſſeſſes in a natural ſtate, and that conſequently the ſtaphyloma, inſtead of being internally concave, is quite compact and ſolid, while it ought to be preciſely the contrary if this tumour were the effect of an exceſſive diſtenſion of the cornea from within outwards, with an attenuation of its natural texture.

In conceding to Richter the encomiums to which he is entitled for his diſtinguiſhed merits in all the branches of the healing art, I cannot but remark on this occaſion, that the illuſtrious author in advancing, as he has done, a matter of fact, relative to the origin and nature of ſtaphyloma, has extended his doctrine too far, in admitting no difference between the ſtaphyloma recently appearing in infants, and that of adult ſubjects, in which laſt, the ſtaphyloma, has acquired ſuch a magnitude as to project conſiderably beyond the eye-lids. I fully agree with Richter as to the certain and demonſtrable fact, that the recent ſtaphyloma in infants is entirely compact and ſolid from the increaſed thickneſs which the cornea aſſumes in this diſeaſe; but it is equally certain, as I have found from repeated obſervation, that in the ſtaphyloma, which originally is perfectly ſolid and compact, after a ſeries of years, and in perſons of a mature age, where the tumour has acquired ſuch a ſize as to project out of the

the eye-lids, the cornea, properly ſo called, is conſtantly thinner, or certainly not thicker than natural, that is to ſay, the tumour is not perfectly ſolid internally, unleſs with regard to its ſtate of fulneſs, as it contains the iris and the cryſtalline and not unfrequently alſo a portion of the vitreous humour; which parts leaving their natural ſituation, are puſhed gradually forwards to occupy the concavity of the cornea, which is proportionally formed and enlarged.

The cornea of infants, in its natural ſtate, is in proportion, at leaſt twice as thick and pulpy as that of adults; and conſequently the anterior chamber of the aqueous humour is proportionally ſo contracted, in compariſon with that of adults, that in very young infants the cornea may be conſidered as almoſt in contact with the iris. Such alſo is the natural ſoftneſs, flexibility, and ſucculency of the cornea in infants at an early age, that when ſeparated from the reſt of the eye in the dead ſubject, and rubbed between the fingers, it loſes at leaſt one half of its bulk and thickneſs, which does not take place in adults. And the cornea is ſo pliant and diſtenſile at this early period, that, if in the fine injections of the head, the injected ſubſtance is extravaſated in large quantity within the eye-ball, the cornea, compreſſed from behind forwards, is conſiderably elevated in the body of the infant towards the eye-lids,

which, under ſuch circumſtances, never happens in the eyes of adults.

In conſequence of this natural ſoftneſs, ſucculency, and flexibility of the cornea of infants, as well as from the natural ſtraightneſs of the anterior chamber of the aqueous humour, it not unfrequently happens, that when they are attacked ſoon after birth with the *puriform* ophthalmia, or variolous metaſtaſis, their cornea, more readily than that of adults, gives admiſſion within its ſpongy texture to the thick and tenacious humour which is propelled into it; by the ſtagnation and condenſation of which, the cornea at that early period not only loſes its natural organization and tranſparency, but alſo ſwells, becomes much thicker than natural, and in a ſhort time degenerates into an acuminated, whitiſh, or pearly tumour, completely ſolid, without any internal vacuity, and perfectly in contact, and adhering to the iris, to which the cornea of infants, as I before obſerved, is naturally very cloſely ſituated.

In the courſe of ſome years, however, the diſeaſe undergoes new modifications. For the whole eye increaſing in volume in proportion to the age, the iris and cryſtalline, from cauſes not fully known, abandon their natural ſituation, and are continually forced forwards; to which perhaps the preternatural fluidity and turgeſcency

turgeſcency of the vitreous humour contributes, which, when the diſeaſe is of long ſtanding, is conſtantly found in large quantity, and of a watery conſiſtence. Now theſe parts, the cryſtalline and iris, when the cornea is not perfectly hardened and firm, gradually preſs this membrane from within outwards, and in time diſtend it in all its dimenſions, ſo as to cauſe it to project beyond the eye-lids, rendering it at the ſame time thinner in proportion to the volume and capacity which it acquires. I have never met with a large ſtaphyloma protruding out of the eye-lids in adult perſons, which had not originated in infancy; and I have conſtantly found that the thickneſs and denſity of the cornea, both in the living and dead bodies of thoſe who were affected with this diſeaſe were in an inverſe proportion to the age. In the inveterate ſtaphyloma, which projects conſiderably beyond the eye-lids, the iris may be diſtinctly ſeen in different parts of it contained within it; and if this is not equally evident in all the parts of the tumour, it is becauſe the conjunctiva which externally covers the cornea, and the veſſels of this membrane having become varicoſe, throw over it a ſtratum of ſubſtance of unequal denſity and opacity. And it is preciſely this denſe ſtratum of the lamina of the conjunctiva covering the cornea, which in the ſtaphyloma that has arrived at a conſiderable ſize

and

and amplitude may eaſily deceive, the ſubſtance of the cornea appearing to acquire greater denſity and thickneſs, in proportion to the increaſe of the tumour, whereas quite the contrary takes place, the increaſed denſity of the lamina of the conjunctiva, which covers it externally, only ſupplying in part the diminiſhed thickneſs of the true texture of the cornea; a means which nature providently employs on many occaſions, in order to prevent the injuries which ſome important parts might receive, when deprived of their natural covering, and expoſed to the action of external agents. It is not to be preſumed, that of the many able ſurgeons and accurate obſervers of every age, who have frequently, in the courſe of their practice, deſtroyed inveterate ſtaphylomata of the largeſt ſize, no one ſhould have perceived that in this higheſt degree of the diſeaſe, the cornea inſtead of being diminiſhed in thickneſs, according to the common opinion, is, on the contrary, a body entirely compact and ſolid internally. On the contrary I find them, when ſpeaking of the deſtruction of large ſtaphylomata, projecting much beyond the eye-lids, by means of the ligature, delivering cautions to draw the thread only lightly for fear of the cornea, rendered thin in theſe caſes, being eaſily lacerated. And Gunz*

* De Staphilom. differt. ſee the Diſput. Chirurg. of Haller.

relates

relates his having been an ocular witneſs of ſuch an unfortunate accident, in a caſe where a ligature had been applied upon the ſtaphyloma, by means of a needle and thread.

The doctrine of Richter, therefore, upon the nature of this diſeaſe is true, when it is confined to the recent ſtaphyloma of infants. But it appears to me to admit of exceptions as it regards the thickneſs of the cornea, in the ſtaphyloma of long ſtanding, which has arrived at a conſiderable ſize, and projects out of the eye-lids.

Some pretend that the ſclerotic coat alſo is ſubject to ſtaphyloma, that is, to a partial diſtenſion and elevation of its anterior hemiſphere in the white of the eye; others entertain a doubt of the exiſtence of this diſeaſe. It has never occurred to me, indeed, even once, to ſee any tumour or elevation of the ſclerotica on its anterior ſurface, correſponding to the white of the eye, in the form of ſtaphyloma; and on the contrary, what may ſeem extraordinary, I have twice happened to meet with the ſtaphyloma of the ſclerotic coat in its poſterior hemiſphere, in the dead ſubject, where I do not know that it has been ſeen or deſcribed by any other. The firſt time was in an eye taken from the body of a woman 40 years old, for another purpoſe. This eye* was of an oval figure, and

* Plate II. fig. 9.

upon the whole, larger than the ſound one of the oppoſite ſide. On the poſterior hemiſphere of this eye, and on the external ſide of the entrance of the optic nerve, or on the part correſponding to the temple of that ſide, the ſclerotica was elevated in the form of an oblong * tumour of the ſize of a ſmall nut. And as the cornea was ſound and pellucid, and the humours ſtill preſerved their tranſparency, on looking through the pupil, there appeared within it, towards the bottom, an unuſual brightneſs, produced by the light penetrating that part of the ſclerotica, which had become thin and tranſparent where it was occupied by the ſtaphyloma. When the eye was opened, I found the vitreous humour entirely diſorganized and converted into limpid water, and the cryſtalline lens rather yellowiſh, but not opake. When the poſterior hemiſphere of the eye was immerſed in ſpirit of wine, with a few drops of nitrous acid added to it, in order to give the retina conſiſtence and opacity, I could perceive diſtinctly, that there was a deficiency of the nervous expanſion of the retina within the cavity of the ſtaphyloma; that the choroid coat was very thin and diſcoloured at this part, and wanted its uſual vaſcular plexus; and that the ſclerotica, particularly at the apex of the ſtaphyloma, was

* Plate II. fig. 9. a.

rendered

rendered ſo thin as ſcarcely to equal the thickneſs of writing paper. I knew that the woman from whom the eye had been taken, had loſt the faculty of ſeeing on that ſide ſome years before, during an obſtinate ophthalmia, attended with a moſt acute and almoſt habitual pain in the head.

The ſame obſervation I had an opportunity of making on an eye, accidentally taken from the body of a woman 35 years of age, and politely ſent to me from Milan by Dr. Monteggia, who has diſtinguiſhed himſelf by his excellent medical and ſurgical writings. This eye was alſo of an oval figure, and larger than the oppoſite one.* The ſtaphyloma of the ſclerotic coat † occupied its poſterior hemiſphere on the external ſide of the entrance of the optic nerve, or on the ſide next the temple. The vitreous humour was converted into water; the capſule of the cryſtalline was exceedingly turgid, with a whitiſh diluted fluid; the cryſtalline, yellowiſh and leſs than natural; the retina, deficient within the ſtaphyloma; the choroid and ſclerotic coats, forming the tumour, were rendered ſo thin as to admit the light. Dr. Monteggia could not furniſh me with any thing poſitive reſpecting this woman's ſight before her death. It is remarkable, that in both the caſes now deſcribed, the ſtaphyloma

* Plate II. fig. 10.

† Plate II. fig. 10. a.

of the ſclerotic coat was ſituated on the external ſide of the entrance of the optic nerve. Further obſervations may, perhaps, hereafter enable ſurgeons to eſtabliſh the diagnoſtic ſymptoms of the ſtaphyloma of the ſclerotic coat; but from its deep ſituation and the nature of the diſeaſe, I doubt very much whether the art will ever arrive at an effectual method of arreſting its progreſs, much leſs of curing it.

Returning to the ſtaphyloma of the cornea, as this part of the eye-ball, in ſuch caſes, is rendered irremediably opake, the aim of the ſurgeon in the treatment of this diſeaſe, when recent, and in infants, muſt be neceſſarily confined to prevent the diſorganized tumour of the cornea from increaſing in ſize, and to depreſs and flatten it as much as poſſible; and in the large inveterate ſtaphyloma projecting beyond the eye-lids, to effect ſuch a reduction of its ſize, that it may re-enter and be deeply lodged within the orbit, ſo as to allow an artificial eye to be fixed, and thereby leſſen the deformity of the countenance.

In recent caſes of ſtaphyloma, Richter propoſes to produce an artificial ulcer upon the baſe of the tumour of the cornea, by means of the reiterated application of the argentum nitratum or the antimonium muriatum, and to keep it open by the repeated uſe of theſe cauſtics; in order to evacuate by means of this ſmall cauterization,

terization the thick and tenacious humour, which is the immediate cauſe of the opacity and preternatural tumefaction of the cornea. The author aſſerts, that he has frequently obtained a diminution of the ſtaphyloma by means of this ſmall drain made in the ſubſtance of the cornea, and in one particular caſe, that he has even reſtored the tranſparency of the cornea; which has always appeared to me one of the moſt extraordinary and wonderful cures of the many which are found recorded on the diſeaſes of the eyes; particularly as it was completed in 14 days. "*Ter repetita operatione, quarto ſcilicet, ſeptimo et decimo die, ne veſtigium quidem morbi die decimo quarto ſupererat.*"*

I am ſorry to be obliged to declare, that although I have frequently adopted this method of treatment in the recent ſtaphyloma of infants, and that with the fulleſt confidence of ſucceſs, not only from a perſuaſion that this plan of treatment proceeded from certain and evident premiſes founded on the nature of this diſeaſe, when recent and in ſubjects of an early age, but becauſe in ſo doing I was guided by one of the moſt authentic writers in ſurgery; yet I have never had the gratification to obtain ſuch ſucceſs, either with regard to reſtoring the tranſparency of the cornea, or diminiſhing the ſize of the ſta-

* Obſerv. Chirurg. Faſcic. II.

phyloma, as in any degree to equal that obtained and related by Richter. In three children, one a year and a half old, and the other two, little more than three years of age, recently attacked with ſtaphyloma in one of the eyes, in conſequence of the ſmall-pox, in which I excited and kept open a ſmall ulcer at the baſis of the cornea, by means of the argentum nitratum, for more than 30 days, I derived no advantage from it with reſpect to the diminution of the tumour, and ſtill leſs with regard to the opacity of the cornea. In a boy five years of age, who had been a ſhort time affected with a ſtaphyloma in one eye, after a violent *chemoſis*, having produced an ulcer upon the baſis of the cornea, by penetrating a ſmall depth into the ſubſtance of the diſorganized and tumid cornea with a lancet, and afterwards keeping the ulcer open for five weeks, by means of a ſolution of the argent. nitrat. I obſerved that the ſtaphyloma was a little depreſſed, and had loſt the acute point which it had in the centre,* but the cornea remained every where opake as at firſt. In two other ſubjects, nearly of the ſame age, under the ſame circumſtances, and treated in the ſame manner, although the ulcer of the cor-

* The conical figure which the cornea aſſumes in this diſeaſe, is a characteriſtic mark by which the ſtaphyloma may be diſtinguiſhed from the leucoma with complete opacity of the cornea.

nea

nea was kept open for 50 days I could obtain no depreſſion or diminution of the ſtaphyloma, and conſequently the pointed tumour in both remained of a pearl colour, as at firſt.

If, however, by means of further trials made by perſons of ability, this plan of treatment ſhould be found to be advantageous, not with a view to reeſtabliſh the tranſparency of the cornea, but merely to reſtrain and depreſs the recent ſtaphyloma of infants, I am of opinion that no one will perſuade himſelf that this mode of treatment can be of any utility in obtaining a diminution of the ſize of the inveterate ſtaphyloma in adult perſons; or that which protrudes beyond the eye-lids and preſſes upon the cheek. For what advantage can be expected from an artificial ulcer made in the ſubſtance of the cornea, which is no longer ſoft and pulpy, nor thickened merely by a tenacious humour effuſed into its cavernous texture, but which, in proceſs of time, has become arid, coriaceous, prominent by the exceſſive diſtenſion from within outwards, and covered by a callous ſtratum formed by the lamina of the conjunctiva, and its varicoſe veſſels? It is certain, that whenever the inveterate ſtaphyloma, projecting beyond the eye-lids, happens to become accidentally ulcerated from external violence, from the acrimony of the tears, or from the long continued preſſure of the parts upon which it reſts, a

diminution in its ſize has never been obſervable in conſequence of ſuch ulceration; on the contrary, it is ſtated to have happened frequently in ſuch caſes, that the exulcerated inveterate ſtaphyloma has degenerated into a fungus of a malignant nature.

In the higheſt degree of this diſeaſe, therefore, when the ſtaphyloma projects out of the eye-lids, the moſt effectual means of arreſting the progreſs of the diſeaſe, and removing the deformity, which we are at preſent in poſſeſſion of, is the excition of the ſtaphyloma, and when the wound is healed, the application of an artificial eye.

Of this operation Celſus* expreſſes himſelf in the following manner. *Curatio duplex eſt. Altera ad ipſas radices per medium tranſuere acu duo lina ducente; deinde alterius lini duo capita ex ſuperiore parte, alterius ex inferiore adſtringere inter ſe, qua jugulatim ſecando id excidant. Altera in ſumma parte ejus ad lenticulæ magnitudinem excindere; deinde ſpodium; aut cadmiam infricare. Introlibet autem facto, album ovi ſana excipiendum, et imponendum; poſteaque vapore aquæ calidæ fovendus oculus, et lenibus medicamentis unguendus eſt.*

Although the firſt method, or that of deligation, is at preſent laid aſide, as admitted by all to be leſs proper; the greater part of ſurgeons,

* De Medicin. lib. vii. cap. 7.

nevertheleſs,

nevertheleſs, continue to pierce the baſe of the ſtaphyloma with a needle and thread, not indeed with a view of making a ligature upon the tumour, but to form a loop, by which a commodious hold may be taken, for the purpoſe of retaining the eye-ball firmly at the time when the extirpation is performed. But ſince this advantage, as I ſhall hereafter ſhow, may be obtained by a more ſimple, expeditious, and leſs inconvenient method to the patient; I am perſuaded that the apparatus of the needle and thread will, ere long, be abandoned, not only as a method of treatment, but as an auxiliary in the operation.

With reſpect to the ſecond mode of removing the *ſtaphyloma*, or that by exciſion, it appears to me that ſufficient attention has not been paid to what has been delivered by Celſus on this ſubject. For he does not direct that the ſtaphyloma ſhould be divided circularly at its baſe, as is practiſed in the preſent day, but that the exciſion ſhould be made in the centre or extreme point of the tumour, and that a circular portion of the ſummit or apex of the ſtaphyloma, equal in ſize to a lentil-ſeed, ſhould be removed. *In ſumma parte ejus ad lenticulæ magnitudinem excindere.* The great importance of this precept of Celſus, in the treatment of the ſtaphyloma, can only be eſtimated by thoſe who have had frequent opportunities of comparing

paring the advantages of his mode of operating, with the very ſerious inconveniences which ariſe from the common practice of removing the ſtaphyloma circularly at its baſe, and the ſtill greater evils which are produced by the circular diviſion of this tumour, including the ſclerotica, according to the practice of Wolhouſe; as ſuch a mode of treatment is invariably followed by violent inflammation of the eye-ball and eye-lids, the moſt acute pain in the head, watchfulneſs, convulſions, copious ſuppuration, and ſometimes gangrene of the eye and eye-lids. It is, in my opinion, a certain fact, eſtabliſhed by an extenſive ſeries of obſervations, that the further the ſemicircular exciſion of the ſtaphyloma is made from the centre or apex of the tumour towards its baſe, and conſequently the nearer the ſclerotic coat, the more conſiderable are the ſymptoms conſequent on this operation; and vice verſa.

Conſiſtently with theſe facts, the following is the method of effecting the deſtruction of the inveterate ſtaphyloma, which I have adopted. The patient being ſeated, I direct the head to be properly held by an aſſiſtant, then with the ſmall knife,* which is uſed for the extraction of the cataract, I pierce through the ſtaphyloma at a line and a half or two lines from the centre or

* Plate III. fig. 7.

apex

apex of the tumour, in the direction from the external to the internal angle of the eye; and paſſing the knife preciſely in the ſame direction as in the extraction of the cataract, I divide the apex of the tumour downwards in a ſemicircular manner. Having done this, I take hold or this ſegment of the ſtaphyloma with the forceps,* and turning the cutting edge of the ſcalpel upwards, I finiſh the operation by removing the apex of the ſtaphyloma circularly; ſo that the detached portion is two, three, and ſometimes four lines in diameter, according to the ſize of the ſtaphyloma. And as a portion of the iris is generally included in the ſection of the apex of the ſtaphyloma, from this membrane having contracted an adheſion to the cornea at the commencement of the diſeaſe, as ſoon as the circular diviſion of the ſummit of the ſtaphyloma is completed, the cryſtalline, or its nucleus, is immediately diſcharged from the eye, and after it a portion of the diſſolved vitreous humour. In conſequence of this evacuation the eye-ball is frequently ſo much diminiſhed as to admit of being covered by the eye-lids, over which I immediately apply a dry compreſs and bandage.

The pain produced by the exciſion is trifling, and it is common to ſee patients very eaſy

* Plate III. fig. 8.

during

during the three or four firſt days after the operation. On the 4th day, in general, the eye and eye-lids begin to be painful, inflamed, and tumefied. On the appearance of theſe ſymptoms the eye ſhould be covered with a bread and milk poultice, with a view of promoting and accelerating the ſuppuration of its internal membranes. Indeed, where the progreſs is regular, the ſwelling of the eye-lids ſubſides towards the 7th or 9th day, and ſome puriform matter is ſeen upon the poultice, mixed with the diſſolved vitreous humour, which ſlowly iſſues from the bottom of the eye; theſe are ſucceeded by the matter becoming thicker and whiter, the patient becoming eaſy, and by a manifeſt diminution of the whole eye-ball, which not only retires within the eye-lids, but deeply within the orbit.

If the eye-lids be gently ſeparated at this period, the conjunctiva is found tumid and reddiſh, and the edge of the divided portion of the ſtaphyloma appears as if it were formed by a ſmall circle of white ſkin. On the ſeparation of this gelatinous circle, which ſeldom exceeds the 12th or 14th day from the operation, the margin of the wound becomes florid; it then contracts daily more and more, and laſtly cloſes entirely. A ſmall fleſhy prominence remains only for a few days in the centre of it, reſembling a ſmall reddiſh papilla, which, by a few applications,

applications of the argentum nitratum, retires completely and heals.

The ſymptoms occaſioned by this operation, are ſo far from being conſiderable, that in the greater number of caſes, the ſurgeon is obliged to irritate the eye for ſeveral days after the operation, in order that it may inflame, partly by leaving it for a long time uncovered and expoſed to the air, and partly by enlarging the wound made in the centre of the ſtaphyloma, by removing another circular portion half a line in breadth, and thus facilitating ſtill further the diſcharge of the humours, and the admiſſion of the air to the cavity of the eye. When the inflammation has once commenced in the internal part of the eye, and is ſucceeded by ſuppuration, the reſt of the treatment proceeds regularly, by the uſe of emollient applications only, and is ſpeedily completed. And as, by adopting the method of deſtroying the ſtaphyloma here recommended, the conſequent contraction of the eye-ball takes place equally around the greater axis of this organ, the mutilated part which remains is alſo regular in its whole circumference, and offers an eaſy and convenient ſupport to the artificial eye.

## Case LXIII.

Regina Fedele, a female peaſant, 19 years of age, living in Caſſanmagnago, had, from her infancy, a ſtaphyloma of the left eye, in conſequence of the ſmall-pox, which gradually increaſed, ſo as to project without the eye-lids for more than an inch. The deformity, as well as the inconveniences ariſing from the perpetual weeping, and the frequent attacks of ophthalmia, which, by conſent, were alſo propagated to the ſound eye, induced the poor girl to apply to this hoſpital for relief on the 20th of November 1785.

I ingenuouſly acknowledge, that experience had not then ſufficiently inſtructed me in the beſt method of operating in caſes of ſtaphyloma, and although I was of opinion that the removal of a portion of the ſclerotic coat with the tumour ought to be proſcribed from practice, yet it appeared to me a matter of little conſequence that the exciſion ſhould be made in the very borders of the cornea with the ſclerotic coat. With the knife, therefore, which is uſed for the extraction of the cataract, I pierced through the baſe of the ſtaphyloma, at the part where the cornea and ſclerotica unite, and divided it downwards; then with the forceps and ſciſſars I removed the whole tumour of the cornea circularly. The

eye-ball was preſently emptied of the humours, and retired within the eye-lids. On examining the detached cornea, which had formed the ſtaphyloma, attentively, I found that this membrane was entirely diſtinct from the callous ſtratum of the conjunctiva covering it; and that it was not thicker than natural, but in ſome parts even thinner. At the moment the ſtaphyloma was extirpated, the patient felt acute pain. After the operation the eye-lids were covered with a dry compreſs and bandage; and as the patient was plethoric I ordered blood to be taken from the arm. Half an hour afterwards the patient was ſeized with vomiting and univerſal ſhiverings, which returned at intervals during the day and following night, notwithſtanding the uſe of Riverius's mixture and opiate enemata.

The following day the eye-lids and ball of the eye appeared unuſually tumid, and of a dark red colour, threatening gangrene. The fever was very ſmart, the pulſe hard, with redneſs of the countenance, and very acute pain in the head. I therefore ordered blood to be taken away from the foot, and at night directed that leeches ſhould be applied upon the left temple, and the eye-lids covered with a poultice of bread, milk, and ſaffron. During the night of the 2d day the patient was delirious, and was ſeized at intervals with univerſal rigors.

On

On the 3d day, obſerving that a blackiſh ſubſtance preſented itſelf between the edges of the tumefied eye-lids, reſembling clotted blood, I careſully ſeparated them, and there guſhed out half a table-ſpoonful of grumous blood mixed with aqueous humour, which was attended with relief to the patient and a diminution of the general ſymptoms.

On the 6th day, as the exceſſive tumefaction of the eye-lids was a little diminiſhed, I found the eye-ball ſullied with matter which was diluted and fetid. The edge of the wound was ſloughy, and a ſmall abſceſs the ſize of a pea was alſo formed in the conjunctiva, correſponding to the external angle of the eye, which I opened with a lancet. From the bottom of this ſmall abſceſs aroſe ſhortly afterwards a fungus which gave me ſome uneaſineſs. I continued, however, the application of the emollient poultices, and the internal uſe of a grain of the tartarized antimony in a pint of the decoction of the triticum repens, taken in ſmall doſes, which kept up the perſpiration, and procured one or two motions daily.

It was not till the 13th day after the operation, that the ſuppuration began to aſſume a healthy appearance, and the fever, and the pain in the head to abate. The eye-lids and ball of the eye afterwards ſubſided gradually, and the fungus of the conjunctiva became ſtationary.

The

The healthy ſuppuration continued copious for a month, during which the margin of the wound of the ſtaphyloma remained dark and ſloughy. When the ſuppuration of the internal part of the eye was greatly diminiſhed, this ſloughy margin ſeparated in the form of an eſchar, and left a ſmall wound of a healthy aſpect. The fungus of the conjunctiva in the external angle of the eye diſappeared, and the diminiſhed eye-ball retired towards the bottom of the orbit. In three weeks more the ſmall wound in the centre of the remaining part of the eye-ball was perfectly healed.

By means of the decoction of the cinchona, and a proper diet, the young woman recovered her former ſtrength, and about ten weeks from the operation, after having ſuffered the moſt acute pain, with great hazard of her life, returned home perfectly cured, as far as the nature of the diſeaſe admitted.

## Case LXIV.

Maria Antonia Bariola, of the valley Salinbeni, 30 years of age, of a delicate complexion, was diſfigured from her infancy with a ſtaphyloma of the right eye. The tumour had gradually increaſed, ſo as to protrude out of the eye-lids, particularly from the age of four years, after receiving a blow upon that eye. The ſta-

phyloma frequently inflamed, and produced a correſponding affection of the left eye alſo, which, on her admiſſion into the hoſpital, was not only inflamed, but ulcerated upon the cornea.

After ſome time had been taken up in the treatment of the ulcer and ophthalmia of the left eye; I propoſed to the patient to ſubmit to the exciſion of the ſtaphyloma, which occupied the right eye, leſt the left eye, which frequently participated in the inflammation with which the other eye was affected, ſhould be ultimately loſt alſo. The patient aſſented to it, and on the 6th of February 1796 I pierced the moſt pointed part of the ſtaphyloma, with the knife uſed for the extraction of the cataract, at the diſtance of a line and a half from the centre or apex of the tumour, forming a ſemicircular border at the lower part, which being raiſed with the forceps and turned upwards I removed circularly with the ſame inſtrument, taking away a portion of the apex of the tumour of the cornea three lines in diameter. The brown and diſorganized lens paſſed through this aperture, and afterwards a conſiderable portion of the diſſolved vitreous humour. On carefully examining this circular portion of the cornea, ſeparated from the reſt of the ſtaphyloma, I found it thinner than that membrane is in a ſound ſtate, except that ſome parts of it were thickened

by

by the induration and callofity of the lamina of the conjunctiva, which covered it. The eye-ball was a little diminifhed, and the eye-lids being clofed, I directed them to be covered with a dry compref's and bandage.

The patient did not feem to feel much pain from the operation, nor during the five following days, neither were the eye-lids or eye-ball at all inflamed. A fmall quantity of mucilaginous humour only, iffued from the eye daily. As the inflammation and fuppuration of the internal part of the eye, however, was neceffary to obtain the propofed intention, and feeing that after fix days from the excifion of the ftaphyloma there was no appearance of its taking place, I ordered the patient to remove the bandage, and expofe this eye as freely to the air as the found one. It was thirty hours after this expedient before the eye and eye-lids began to inflame and tumefy, which was attended with moderate pain and flight feverifhnefs. A poultice of bread and milk was now applied, and after three days the fuppuration was feen to proceed from the internal part of the eye-ball, at firft of a ferous, but afterwards of a good quality. The margin of the wound was pale and floughy.

In eight days the fuppuration abated, and fhortly afterwards, on the feparation of this fmall floughy circle, the wound contracted fo

that there was no longer any aperture in its centre, but a ſmall reddiſh fleſhy papilla, which I touched ſeveral times with the argentum nitratum. The emollient poultice was now diſcontinued, and the vitriolic collyrium ſubſtituted in its ſtead, which was dropped into the eye ſeveral times a day. The eye-ball very much diminiſhed, and flattened at the part previouſly occupied by the ſtaphyloma, preſerved its motion, and preſented a very good ſupport for the application of the artificial eye. The cure was completed in little more than a month from the period at which the eye began to be inflamed.

In comparing this caſe with the preceding, the advantage which reſults from the ſmall circular exciſion of the apex or ſummit of the ſtaphyloma, in the manner taught by Celſus, muſt be obvious, contraſted with the alarming ſymptoms which ſucceed the removal of this tumour at the line where the cornea and ſclerotica unite, and more particularly if it be executed in the ſclerotic coat itſelf.

I ſhall not ſubjoin any other caſes on this ſubject, to theſe now delivered, ſince thoſe which I ſhall relate at the end of the next chapter, will equally contribute to a fuller confirmation of this practical point.

CHAP

## CHAP. XVIII.

### OF THE DROPSY OF THE EYE.

In all the cavities of the animal body, moiſtened by a ſerous vapour, as in thoſe deſtined to contain a certain and determinate quantity of aqueous and limpid fluid, there is ſuch a reciprocity of action between the ſecerning extremities of the arteries, and the mouths of the abſorbent veſſels, that the fluid poured into theſe cavities is held in circulation, and inceſſantly renewed, without ever accumulating beyond a certain degree, or a determinate quantity. If this relation of action between theſe two vaſcular ſyſtems be interrupted or deſtroyed, in conſequence of general or local indiſpoſition, the cavities, no longer lubricated by the ſerous vapour, contract and are obliterated; or, on the contrary, become unuſually diſtended by the exceſſive quantity of ſerous or watery fluid inceſſantly collecting and ſtagnating in them, and acquire an immoderate and much greater ſize than any one unacquainted with theſe ſubjects might imagine.

The eye, conſidered merely as a cavity deſtined to contain a certain and determinate quantity of ſerous, limpid, aqueous fluid, is ſometimes ſubject to one and ſometimes to the other of theſe two diſeaſes, the firſt of which is denominated *atrophy*, the latter *dropſy* of the eye. In the firſt caſe, the eye-ball gradually diminiſhes, ſo as to contract itſelf and waſte away; and as the abſorbent ſyſtem never ceaſes to act ſo, where there is a defect of fluid to be abſorbed, it takes up, by little and little, the ſolid parts of the eye-ball, which it inſenſibly diminiſhes, and in proceſs of time even deſtroys. In the ſecond caſe the eye becomes of a ſize greater than natural, and ſometimes ſo extraordinary in its bulk as to protrude out of the eye-lids, at firſt with great weakneſs, and afterwards with complete loſs of ſight.

The generality of ſurgeons teach, that the immediate cauſe of the dropſy of the eye is ſometimes the increaſe of the vitreous, at other times of the aqueous humour. In all the caſes of dropſy of the eye which I have operated upon, or have examined in the dead body, in different ſtages of the diſeaſe, I have conſtantly found the vitreous humour, as the diſeaſe was inveterate or recent, more or leſs diſorganized and in a ſtate of diſſolution; nor have I been able, in any inſtance, to diſtinguiſh, on account of the increaſed quantity,

which

which of theſe two humours, vitreous or aqueous, had had the greater ſhare in the formation of the diſeaſe. Among the moſt eſteemed modern oculiſts there are ſome who believe that the principal cauſe of this diſeaſe ought to be referred to the contraction of the inorganic pores of the cornea, through which the aqueous humour being no longer able to tranſude, ſtagnates within the eye, and there produces the dropſy. In aſſerting this, they appear not ſufficiently acquainted with the activity of the abſorbent ſyſtem in the animal œconomy, and ſeem not to have conſidered, that in conformity with their theory, the dropſy of the eye ought conſtantly to ſucceed the *pannus* of this organ, the *leucoma,* and extenſive cicatrices of the cornea, a circumſtance which is contradicted by daily obſervation and experience.

Laſtly, I have diſſected an eye affected with dropſy, in a child about three years and a half old, who died of maraſmus. In this eye, the vitreous humour was not only wanting, and the cavity which it occupied filled with water, but the membrane of the vitreous humour was alſo converted into a ſubſtance, partly ſpongy, and partly lipomatoſe. This eye was a third part larger than the ſound one. The ſclerotic coat was not thinner than that of the ſound eye, but was flaccid and yielding, and when ſeparated from the choroid coat could not ſupport itſelf or preſerve

ſerve the globular form. The cornea was a third part larger than that of the ſound eye, had loſt its natural pulpy quality, and was ſenſibly thinner than that of the ſound eye. Between the cornea and the iris there was a conſiderable quantity of aqueous humour of a faint red colour. The cryſtalline lens, with its opake capſule, was puſhed a little into the anterior chamber of the aqueous humour, where it could not advance further in conſequence of its capſule having contracted a firm adheſion with the iris around the edge of the pupil. When this capſule was opened the cryſtalline paſſed out, one half of which was diſſolved, and the reſt very ſoft. It was impoſſible to ſeparate the poſterior capſule of the cryſtalline from a hard ſubſtance, which appeared to be, as it was in reality, the membrane of the vitreous humour altered in its texture. On dividing the choroid coat from the ligamentum ciliare to the bottom of the eye, a conſiderable quantity of reddiſh water iſſued from the poſterior part of the eye, but not a particle of vitreous humour. Inſtead of vitreous humour there was a ſmall cylindrical ſubſtance, partly fungous, partly lipomatoſe, ſurrounded by a conſiderable quantity of water, which ran through the longitudinal axis from the entrance of the optic nerve to the corpus ciliare, or to that hard ſubſtance to which the poſterior convexity of the capſule of the cryſtalline

talline ſtrongly adhered. This ſmall cylinder, for two lines and a half from the entrance of the optic nerve forwards, was covered by a ſtratum of whitiſh ſubſtance folded upon itſelf, as the omentum is, when it is drawn upwards towards the fundus of the ſtomach. I ſuppoſe that this ſtratum of whitiſh ſubſtance was the remains of the diſorganized retina; for on pouring ſome rectified ſpirit of wine upon the whole internal ſurface of the choroid coat, and upon this little cylinder, I found no trace of retina upon the internal ſurface of the choroid, and this white ſubſtance, folded upon itſelf, acquired a conſiderable degree of firmneſs, preciſely as the retina does when immerſed in ſpirit of wine. The little cylinder, as well as the hard ſubſtance which occupied the place of the corpus ciliare, was evidently the membrane of the vitreous humour, emptied of water, and converted into a maſs, partly ſpongy, as I have ſaid, and partly lipomatoſe. It is not eaſy to determine whether this fungous and lipomatoſe degeneration of the membrane of the vitreous humour had preceded the dropſy of the eye, or had been the conſequence of it. This caſe, however, added to ſeveral others of dropſical eyes which I have examined, in which no vitreous humour was found in the poſterior part of the eye, but only ſome water or bloody lymph, contributes greatly to prove, that this diſeaſe conſiſts principally

in

in a morbid ſecretion of fluid from the ſmall cells of the vitreous humour, and ſometimes, alſo, in a ſingular degeneration of the alveolar membrane, of which the vitreous humour is compoſed.*

The increaſed ſecretion of aqueous fluid, both into the ſmall cells compoſing the vitreous humour, and into other parts of the eye-ball; the rupture of thoſe cells from exceſſive diſtenſion; and at the ſame time the diminiſhed energy of the abſorbent ſyſtem of the affected eye, are moſt probably the cauſes of the morbid accumulation of the humours of the eye. From the ſtagnation and gradual increaſe of the vitreous and aqueous humours, it neceſſarily follows, that the eye-ball aſſumes at firſt an oval figure, terminating in a point at the cornea; then, by enlarging in all its dimenſions, it arrives at a ſize greater than the other, and ultimately protrudes out of the orbit, ſo as no longer to admit of being covered by the eye-lids, diſfiguring the patient's countenance, as if an ox's eye had been inſerted in the place of the natural one.

* A caſe, nearly ſimilar to this, is related in the Medical Obſervations and Inquiries, vol. iii. art. 14. It is to be obſerved, however, that in the child mentioned in this work, the eye firſt began to diminiſh in ſize, and afterwards to become dropſical, and to acquire a very conſiderable bulk, which, if it had taken place in the caſe that came under my obſervation, could not have been known.

This

This diſeaſe is ſometimes preceded by blows upon the eye or correſponding temple, or by an obſtinate internal ophthalmia; at other times by no other inconvenience than a troubleſome ſenſe of ſwelling and diſtenſion in the orbit, difficulty in moving the eye-ball, and conſiderable diminution of ſight: and laſtly, by none of theſe cauſes, nor by any other ſufficiently evident; eſpecially if the diſeaſe happens in children at a very early age, from whom no account can be obtained. As ſoon as the eye has aſſumed the oval figure, and the anterior chamber has become larger than natural, the iris appears placed more backwards than uſual, and is in a ſingular manner tremulous on the ſlighteſt motion of the eye-ball. The pupil remains dilated in every degree of light; and the cryſtalline is ſometimes brown from the commencement of the diſeaſe, at other times it only becomes ſo in the higheſt degree of it. When the diſeaſe becomes ſtationary, and the cryſtalline lens is not profoundly opake, the patient can diſtinguiſh light from darkneſs, and, in a ſmall degree, the figures of bodies, and the moſt vivid colours; but when the eye increaſes ſtill more in bulk, and the cryſtalline is entirely opake, the retina is, as it were, rendered paralytic, by the exceſſive diſtenſion, and conſequently is no longer ſenſible to the few rays of light

light which paſs through the edges of the opake cryſtalline to reach the bottom of the eye.

In the laſt ſtage of this diſeaſe, or when the dropſical eye-ball protrudes out of the orbit, and can no longer be covered by the eye-lids, to the ill effects already enumerated, are added thoſe which ariſe from the aridity of the eye-ball, the contact of extraneous bodies, the friction of the cilia, the diſcharge of matter and tears, the ulceration of the lower eye-lid, upon which the eye-ball preſſes, and the excoriation of the eye-ball itſelf; in conſequence of which, the dropſical eye is occaſionally attacked with violent ophthalmia and ſevere pain in the affected part, and the whole of the head. Nor does the ulceration always keep within certain bounds, but ſpreads, firſt rendering the cornea opake, and afterwards deſtroying the ſclerotica, and, in proportion, the other component parts of the eye-ball.

On the firſt appearance of the dropſy of the eye, ſurgical writers adviſe the internal adminiſtration of mercurials, the extract of cicuta, that of the pulſatilla nigricans (anemone pratenſis); and externally, aſtringent and corroborant collyria, a ſeton in the neck, and compreſſion upon the protruding eye-ball. As far, however, as I have conſulted the reſult of the obſervations of the beſt practitioners upon this ſubject, I have not met with a ſingle hiſtory

correctly detailed of a cure of the dropſy of the eye by means of theſe internal remedies. And, with reſpect to the external applications, I know from my own experience, that when the diſeaſe is manifeſt, aſtringent and corroborant collyria, as well as preſſure upon the protuberant eye, are highly injurious. In theſe caſes, I have ſucceeded in quieting, for ſome time, the uneaſy ſenſe of diſtenſion within the orbit, and upon the forehead and temple of the ſame ſide, of which patients in this ſtate complain ſo much, particularly when they are affected with recurrent ophthalmia, by means of a ſeton in the neck, frequent ablutions with the aqua malvæ, and the application of a plaſter made of the ſame plant. But as ſoon as the eye-ball begins to protrude from the orbit, and to paſs beyond the eye-lids, there is no means of preventing the unhappy conſequences of the diſeaſe, but by an operation which conſiſts in evacuating the ſuperabundant humours of the eye, by means of an inciſion, and thereby obliging its membranes, in conſequence of a mild inflammation and ſuppuration of the internal part of the eye, to contract themſelves, and retire to the bottom of the orbit. To defer this operation longer, would be to abandon the patient to the inconveniences of an habitual ophthalmia, the danger of ulceration of the eye-ball and ſubjacent

ſubjacent eye-lid, and even to the carcinoma of the whole eye, with the hazard of his life.

To fulfil this indication of emptying the eye-ball of the ſuperabundance of aqueous humour ſtagnating in it, the *paracenteſis* of the eye-ball was formerly highly commended. *Nuck*,* one of the advocates for this operation, punctured the eye by means of a ſmall trocar, p e-ciſely in the centre of the cornea. Afterwards it was judged more proper to puncture the eye-ball through the ſclerotic coat, at about two lines from its union with the cornea, for the purpoſe of more eaſily evacuating the vitreous humour alſo, together with the aqueous, in ſuch quantity as might be thought ſufficient to diminiſh the morbid enlargement of the eye-ball.

This method of operating in the dropſy of the eye, notwithſtanding the approbation it received from the moſt celebrated ſurgeons, is at preſent fallen into diſuſe, as ineffectual and inadequate to the purpoſe. Nor will this appear ſurpriſing to thoſe who are acquainted with our preſent notions upon the animal œconomy, particularly with reſpect to the abſorbent ſyſtem, and who are not unaware how little can be reckoned upon the favourable ſucceſs of the paracenteſis, as a mode of treatment in chronic

* De Duct. Ocul. Aquos, page 120.

dropſies

dropſies in general, but particularly that of the tunica vaginalis, or *hydrocele*. For the radical cure of the latter is never obtained, unleſs, after the water is evacuated, the adheſive inflammation takes place in the tunica vaginalis and albuginea, or when both theſe membranes ſuppurate, ulcerate, and contract a firm adheſion to each other, by which the poſſibility is taken away of any further collections of water in the ſcrotum. And if it has occaſionally happened that the puncture has effected a radical cure of the hydrocele, it is becauſe by an unforeſeen accident it has excited an inflammation of the tunica vaginalis and albuginea, and has thereby produced a coaleſcence of theſe two membranes.

According to theſe principles, the paracenteſis of the eye, directed only to evacuate the ſuperabundant quantity of fluid contained in it, cannot be a means of curing the dropſy of this organ, unleſs the puncture made by the trocar excite an inflammation and ſuppuration, and afterwards a coaleſcence between the membranes compoſing it. Nuck relates, that, in a young man of Breda, on whom he performed the operation, he was obliged to puncture the eye five times at different periods; that at the 6th time it was neceſſary to employ ſuction through the canula, in order to evacuate the greateſt poſſible quantity of vitreous humour; and laſtly, that

he was under the neceſſity of introducing a plate of lead between the palpebræ and eye, for the purpoſe of maintaining a continual preſſure upon the empty and diminiſhed eye-ball. In a woman of the Hague, he ſays, that he punctured the eye twice without advantage, and that ſhe was two or three times more ſubjected to the ſame operation, without, however, adding what was the reſult of it. I have not much difficulty in believing, that the radical cure of the dropſy of the eye may have been ſometimes obtained by means of the puncture, after repeated introductions of the trocar, and other ſimilar harſh modes of treatment with the canula of this inſtrument, introduced into the eye-ball; but this ſucceſs cannot be attributed to the ſimple evacuation of the ſuperabundant quantity of vitreous and aqueous humour; but to the irritation produced by the canula, and to the conſequent adheſive inflammation or ſuppuration excited in the internal membranes of the eye. It is not ſurpriſing that Woolhouſe, after having learnt this from experience, wiſhing to ſecure the perfect ſucceſs of the *paracenteſis*, for the radical cure of the dropſy of the eye, ſhould afterwards have taught that when the canula has been introduced into the eye, it ought to be rotated between the fingers at leaſt ſix times; and, according to the ſame rule, Platner ſhould have propoſed, that after the humours of the

eye

eye have been diſcharged by means of the trocar, a tepid fluid ſhould be injected into the eye through the canula; and Mauchart, that the aperture made in the eye ſhould be kept open by means of a ſmall tent of lint. If all theſe circumſtances prove on the one hand the inſufficiency of the paracenteſis in the radical treatment of the dropſy of the eye, they evidently ſhew on the other, that the perfect cure of this diſeaſe can only be obtained by emptying the eye of its humours, and at the ſame time exciting in its internal membranes, a certain degree of inflammation and ſuppuration.

In order to obtain this completely, the moſt eaſy and expeditious method hitherto propoſed, is, without doubt, that which I have detailed in the preceding chapter on the radical treatment of the inveterate ſtaphyloma, which projects beyond the eye-lids. Upon which I cannot but repeat alſo upon the preſent occaſion, that the circular exciſion of the dropſical eye-ball in the ſclerotic coat is highly diſadvantageous, if not dangerous. For this operation is conſtantly followed by the moſt alarming ſymptoms, as repeated hæmorrhages, collections of grumous blood in the bottom of the eye-ball, violent inflammation of the eye-ball, of the eye-lids, and head; inceſſant vomiting, convulſions, and delirium, with great hazard of the patient's life. Thoſe modern writers indeed, who have faith-

fully communicated to the public the reſult of their practice upon this ſubject, in the number of whom, after Louis,* Marchan,† and Terras,‡ deſerve much praiſe, have ingenuouſly declared that in ſome caſes of dropſy of the eye, in which they have performed this operation, they have had much reaſon to regret their attempt.

The circular inciſion made in the upper part or centre of the cornea of the dropſical eye, of the circumference of a large lentil-ſeed, or rather more, in the manner deſcribed by Celſus on the ſubject of ſtaphyloma, is exempted from theſe very unpleaſant conſequences. By means of this operation, which is in no degree painful, an opening is made for the diſcharge of the humours, and an inflammation is promoted in the internal parts of the eye. And this is obtained without occaſioning that ſudden evacuation and ſubſidence of the membranes of the eye, which neceſſarily happens when the circular inciſion is made in the ſclerotic coat, which greatly affects the nerves of this organ, and the parts which ſympathize with it, as the head and ſtomach; this intimate conſent not being perhaps the leaſt of the cauſes from which the unhappy conſequences before mentioned are produced; independently of thoſe which neceſſarily ariſe from

* Mémoires de Chirurg. T. xiii. page 286. 290.

† Journal de Med. Paris. Janvier 1770. Sur deux exophthalmics ou groſſeurs contre nature du globe de l'œil.

‡ Ibidem Mars 1776. Sur l'hydrophthalmie.

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the almoſt ſudden expoſure of a large ſurface of the bottom of the eye to the contact of the air, and the frequent uſe of lotions which are employed in theſe caſes.

With reſpect to the method of operating, it is preciſely the ſame as that detailed in the preceding chapter. The ſurgeon, therefore, whether the cornea be tranſparent or not (ſince, as I have ſaid, the immediate organ of viſion, in theſe caſes, is irremediably loſt) ſhould pierce this membrane with the ſmall knife, at the diſtance of a line and a half from its ſummit or centre, and paſſing the inſtrument from one canthus of the eye to the other, ſhould divide it downwards in the form of a ſemicircle, then having raiſed this ſegment of it with the forceps, and turned the cutting edge of the knife upwards, he ſhould complete the operation by removing a circular portion of the centre of the cornea, of the ſize of a large lentil-ſeed, or three lines in diameter in the caſe of an adult. Through this circular opening in the centre of the cornea, the ſurgeon, by a gentle preſſure, ſhould force out as much of the ſuperabundant humours of the eye, as may be ſufficient to allow the diminiſhed eye-ball to re-enter the orbit, and be covered by the eye-lids. For the remainder, which is left ſtagnating in the eye, will gradually flow out through this circular aperture in the centre of the cornea,

without the aſſiſtance of further preſſure. Until the appearance of the inflammation on the 3d or 5th day from the operation, the eye ſhould be covered by a dry compreſs and bandage. But as ſoon as the eye and eye-lids begin to be inflamed and ſwollen, the ſurgeon ſhould, if neceſſary, employ the internal remedies ſuited to moderate the inflammation, and ſhould cover the eye-lids with a poultice of bread and milk, which ought to be renewed every two hours at furtheſt. It very frequently happens, both in the caſe of ſtaphyloma and in the dropſy of the eye, that on the firſt appearance of the inflammation, the eye which has been operated on increaſes in ſize, and protrudes out of the eye-lids again, nearly as much as before the operation. In this caſe it will be uſeful to cover the projecting portion of the eye-ball with a ſmall piece of fine linen ſpread with a liniment compoſed of oil and wax, or with the yolk of an egg and the oil of St. John's wort, over which the poultice of bread and milk ſhould be applied.

When the ſuppuration of the internal part of the eye has commenced, which will be evident by the dreſſings being moiſtened with a tenacious lymph mixed with a portion of the humours of the eye, which will inceſſantly flow from the opening in the cornea, and by the margin of the inciſion aſſuming a pale ſloughy appearance, the eye-lids will ſubſide, the eye-ball

diminiſh

diminiſh in ſize and gradually re-enter the orbit, and will continue to contract itſelf more and more. The ſmall ſloughy margin of the wound in the cornea will afterwards ſeparate in the form of an eſchar, and leave a ſmall ulcer of a healthy colour, which in the ſame manner as the eye-ball will gradually contract till it is cloſed and entirely healed, leaving ſufficient room between the eye-lids, and the mutilated portion of the eye-ball, for the appoſition of an artificial eye.

Although the circular exciſion of the centre of the cornea of the ſize of a large lentil-ſeed, be ſufficient in the adult to excite a mild inflammation and ſuppuration in the internal part of the eye; yet if this ſhould not manifeſt itſelf before the 5th day, it will be neceſſary to expoſe the eye to the air, or as I have ſaid, in ſpeaking of the ſtaphyloma, to remove a circular portion of the cornea, by means of the forceps and curved ſciſſars, a line or rather more in breadth; which occaſions the patient no inconvenience or pain, and produces the deſired effect of ultimately exciting an inflammation and mild ſuppuration of the internal part of the eye, without which a complete cure cannot be obtained.

## Case LXV.

A peaſant boy, 13 years of age, of a healthy and robuſt conſtitution, had no other complaint,

except an immoderate enlargement of the right eye, which projected ſo much out of the orbit that the eye-lids were not ſufficient to cover it. The cornea of this eye, although not clear, allowed the deeply-ſeated iris to be yet ſeen through it, the pupil dilated, and the cryſtalline of a dark colour. His mother informed me that at two years of age, a little after the deſiccation of the ſmall-pox, he was afflicted with a violent inflammation in both his eyes with a denſe cloud, particularly in the right eye; that by means of repeated bliſters to the neck and behind the ears, and other external and internal remedies, he finally recovered the uſe of his left eye; but that the right remained in the ſame ſtate; and that it afterwards enlarged gradually till it acquired the enormous ſize which it had when I ſaw him; without his having ever complained of violent pain in it. The boy being taken into the hoſpital I agreed to perform the operation upon him, which was on the 8th of June 1797.

Having pierced through the middle part of the cornea with the ſmall knife which is uſed for the extraction of the cataract, and elevated the lower ſegment of it with the forceps, I removed a circular portion of the centre of the cornea with Daviel's ſciſſars, rather more than two lines in diameter; and as the cryſtalline did not advance by a ſlight preſſure, I opened

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its capſule with the point of the knife, from which a milky humour immediately eſcaped, and afterwards the dark coloured nucleus of the cryſtalline, and by a moderate degree of preſſure, a conſiderable quantity of vitreous humour in a ſtate of diſſolution, by which the eye-ball was ſo much diminiſhed, that on directing the patient to cloſe his eye-lids, they were ſufficient to cover it completely.

The boy did not ſeem to feel much pain during the operation, and paſſed the firſt and ſecond day out of bed, without experiencing any inconvenience. On removing the compreſs and bandage from time to time, they were moiſtened with a glutinous humour, which had all the appearance of being the diſſolved vitreous humour. On the 4th day I found the eye-lids ſwollen, red, painful, and a little ſeparated, and the eye-ball inflamed, with a ſlight pain in the head, and a little fever. I ordered a poultice of bread and milk to be applied upon them, and to be renewed every two hours.

On the 7th day the ſuppuration commenced in the internal part of the eye-ball, at firſt of a ſerous, and afterwards of a mucous and good quality, with a diminution of the fever and pain. The ſuppuration continued in larger or ſmaller quantity for two weeks, and in the mean time the palpebræ and eye-ball ſubſided greatly, and the latter very much diminiſhed in

ſize, retired towards the bottom of the orbit. The ſmall ſloughy circle which ſurrounded the inciſion in the centre of the cornea, ſeparated entirely, and left a ſmall wound of a florid colour, which in a week cloſed, and by a few applications of the argentum nitratum healed entirely. The deficiency of the eye might have been eaſily ſupplied by an artificial one.

## Case LXVI.

A young lady, 16 years of age, of a delicate conſtitution, in other reſpects healthy and regular, was affected with an enlargement of the left eye, which increaſed in all its dimenſions, ſo as in the courſe of nine years to become twice the ſize of the oppoſite one, projected out of the orbit, and did not admit of being covered by the eye-lids.

Her parents attributed this diſeaſe to a fall which ſhe had had when a child upon a heap of wood and rubbiſh, by which ſhe ſtruck and violently bruiſed her left eye, which was greatly diſcoloured externally. The cornea of this eye was, to ſome extent, become opake; but the pupil, notwithſtanding, could be ſeen beyond it irregularly dilated, and the cryſtalline dark.

While the eye-ball remained on a level with the orbit, the patient complained of no greater inconvenience than that of blindneſs, but as ſoon

as it could be no longer covered by the eye-lids an ophthalmia ſupervened, which became habitual, and was occaſionally communicated to the ſound eye; and this was accompanied with a very troubleſome ſenſe of tenſion in the enlarged eye, and in the temple of the ſame ſide. Aſtringent applications, compreſſion, and the internal uſe of the pulſatilla nigricans had, as far as it appeared, augmented the pain in the head and eye, and had rendered the attacks of ophthalmia more frequent than before.

On being conſulted, I propoſed to empty the dropſical eye by the exciſion of a portion of the cornea, as the only expedient capable of arreſting the progreſs of the diſeaſe, and preſerving the ſound eye. The patient, as well as her friends, rejected this project as too violent and extreme. In order to allay the pain in the eye and head, and the troubleſome ſenſe of tenſion in the orbit, I preſcribed to the patient the application of ſmall bags of mallows with a little camphire, and the emulſion of gum arabic with a few drops of the tincture of opium to be taken at night.

Two months after the conſultation, the ſame inconveniences returned with ſo much violence, that the patient demanded to have the operation inſtantly performed; which was executed preciſely as in the preceding caſe, that is, by removing a circular portion in the centre of the

the cornea, of the ſize of a large lentil-ſeed. Some aqueous, and a large quantity of thin vitreous humour flowed out, and alſo the dark cryſtalline in a ſtate of diſſolution. The eye-ball retired a little within the orbit, ſo as to be covered by the eye-lids.

The patient found great relief from this evacuation of the eye, and continued perfectly eaſy till the 5th day. Finding, however, that the eye was ſlow in inflaming, I directed the patient to keep it expoſed to the air the whole of the 6th day. On the night of the 7th the eye-lids were tumefied, and the eye-ball began to inflame, and gradually to enlarge ſo much as to be ready to project out of the eye lids again. The fever, however, and the pain in the eye and head were moderate. The eye-lids and eye were covered with a cloth ſpread with the yolk of an egg and oil of St. John's wort; and over it was applied a poultice of bread and milk. The general treatment was limited to ſome emollient clyſters and a low diet.

On the 11th day the ſerous ſuppuration appeared, and afterwards the mucous, which continued abundant for 20 days longer, on the appearance of which, the fever and pain in the eye entirely abated, and the tumefaction of the palpebræ and eye-ball gradually ſubſided. The ſmall ſloughy circle around the inciſion in the cornea was afterwards detached as uſual; the

little

little ulcer of a good colour contracted, forming in the centre a kind of fleſhy papilla, which was repreſſed by the argentum nitratum, and finally healed entirely. The young lady, though cured, could not bear the application of the artificial eye, till eight months after the evacuation of the eye-ball.

## Case LXVII.

In the beginning of June 1799, Signor Vincenzo Viſconti, a very able apothecary of this city, came to me with his infant ſon, about a year and a half old, who had been juſt brought to him from the country, where he had been nurſed, that I might examine the left eye, which had become conſiderably more turgid and prominent than the right, with tumefaction of the eye-lids of that ſide, and a ſpecies of ſugillation of the conjunctiva, particularly towards the internal angle. The father conjectured that it had ariſen from a fall or blow upon the left eye; but the nurſe ſtrongly denied it. The child did not ſeem to be in pain, and appeared as if he could ſee with this eye. I ordered the little patient to be gently purged, and reſolvent fomentations to be applied externally.

Theſe remedies were of no advantage, and the eye-ball increaſed in ſize with ſuch rapidity, that by the middle of November of the ſame year it projected out of the orbit prodigiouſly,

and

and was ſo large as not to admit of being covered by the eye-lids; which, as well as the conjunctiva, were occaſionally inflamed, without any evident cauſe, on which account it was ſometimes neceſſary to take away blood locally, by means of leeches. At this period the ſight of the left eye was greatly diminiſhed, if not entirely loſt.

The rapid enlargement of the eye-ball, the inutility of the remedies hitherto employed, the deformity of the countenance, and more particularly the danger of the ſound eye being affected by it, or the dropſy degenerating into a much worſe diſeaſe, determined me, together with Signor Volpi, ſurgeon of this hoſpital, to empty and diminiſh the ſize of the dropſical eye.

On the 21ſt of November, therefore, the child being placed upon a table, and held by proper aſſiſtants, with the ſmall knife, which is uſed for the extraction of the cataract, I pierced through the cornea of the dropſical eye, near the centre of it, and taking hold of the divided ſemicircular border with the forceps, and turning the cutting edge of the knife upwards, I removed a circular portion of the centre of the cornea, of the diameter of a ſmall lentil-ſeed. I choſe, in this, caſe, to remove as little of the centre of the cornea as poſſible, not only as I was deſirous of aſcertaining again, whether the

ſymptoms

ſymptoms conſequent on the evacuation of the eye-ball, are in proportion to the extent of the circular inciſion made in the cornea, but becauſe I greatly feared, that in ſo young a child, a ſudden and violent inflammation of the eye and eye-lids might be attended with fatal conſequences.

Through this ſmall aperture formed in the centre of the cornea, the ſemifluid and diſſolved cryſtalline eſcaped, and a large quantity of thin vitreous humour; ſo that the eye-ball inſtantly retired within the eye-lids, which were covered with a compreſs and bandage. The child ſlept a little after the operation, and afterwards got up and paſſed the reſt of the day as uſual, in play, without ſhewing any ſign of pain.

From the 21ſt to the 28th, ſome fluid reſembling the diſſolved vitreous humour flowed from the eye, and the eye-ball and palpebræ ſubſided daily; but no appearance of inflammation preſenting itſelf in the internal part of the eye, I ordered that the child's eye ſhould be uncovered, with the preciſe view of cauſing it to inflame; which, however, had no effect.

On the 30th of November, I obſerved that a portion of the vitreous humour, not diſſolved, but conſiſtent and globoſe, protruded out of the circular aperture formed in the centre of the cornea, and the eye-ball appeared leſs diminiſhed than it was on the preceding days. With a ſtroke

ſtroke of the ſciſſars I removed this obſtacle formed by the vitreous humour, and on preſſing upon the eye-ball gently, a conſiderable quantity of bloody ſerum flowed out, after which the eye-ball became as ſmall as on the preceding days.

On the 2d of December ſome ſigns of inflammation in the eye-lids and conjunctiva appeared. The child ſeemed deſirous to lie in bed. I ordered a bread and milk poultice to be applied upon the tumid eye-lids.

On the 8th of December, the inflammation of the eye-lids and conjunctiva, inſtead of extending, as I had hoped, within the eye-ball, had, on the contrary, entirely ceaſed, and a portion of the iris preſented itſelf at the ſmall opening made in the centre of the cornea, which completely cloſed up this aperture, and the eye-ball, in the mean time, became again turgid. I puſhed back this procidentia of the iris with the point of a probe, and immediately a remarkable quantity of bloody ſeroſity flowed out.

Convinced now, that the circular aperture formed in the centre of the cornea was too ſmall, and leſs than was requiſite for exciting an inflammation of the internal membranes of the eye; by means of the forceps and curved ſciſſars I removed a circular portion from the border of the cornea, ſo as to render this opening of a circumference

ference equal to a large lentil ſeed. After this an inflammation was ſpeedily excited in the internal parts of the eye-ball, which had a very mild courſe, never obliging the child to lie in bed, nor cauſing it any acute pain. The internal inflammation having terminated in ſuppuration, true pus began to appear upon the poultice: from this time the cure proceeded with the greateſt regularity to the end, without the child's ordinary mode of living, or its uſual good humour being interrupted.

In proportion as the diſcharge of matter proceeding from the internal part of the eye diminiſhed in quantity, the eye-lids ſubſided, and the eye diminiſhed in ſize, and ſunk towards the bottom of the orbit, leaving at laſt a regular ſurface, which would ſerve at pleaſure for the convenient ſupport of an artificial eye.

The reſult of this hiſtory proves, in the moſt convincing manner, what has been aſſerted in the two laſt chapters; that the violence of the ſymptoms conſequent on the operation of the *ſtaphyloma* and dropſy of the eye, are in proportion to the extent of the circular inciſion made in the eye-ball, for the evacuation of the humours. That therefore the very uſeful precept of Celſus, of removing only a circular portion of the centre of the cornea, of the ſize of a lentil-ſeed, admits of ſome exceptions. For if this inciſion be too ſmall to allow the humours to

be readily diſcharged, and the blood which afterwards collects within the eye-ball, or be ſuch as to be eaſily cloſed up by ſome portion of the vitreous humour, which is not diſſolved, by a portion of the iris, or by grumous blood, it gives occaſion to new collections of bloody ſeroſity within the cavity of the dropſical eye, and prevents the inflammation and ſuppuration of its internal membranes; a circumſtance abſolutely neceſſary to obtain the end which the ſurgeon propoſes in the treatment of this diſeaſe.

## CHAP. XIX.

### OF THE AMAUROSIS AND OF THE HEMERALOPIA.

THE celebrated ſurgeons Schmucker and Richter, guided by obſervation and experience, have treated this ſubject with ſo much preciſion and clearneſs, that it only remains for me at preſent to add ſome reflections and facts, which tend to confirm the truth and utility of the doctrine of theſe two illuſtrious writers, and thus facilitate the ſtudies of the young ſurgeon.

The amauroſis is *perfect or imperfect*, *inveterate or recent*, *continual or periodical*. The *perfect inveterate amauroſis*, with organic injury of the ſubſtance conſtituting the immediate organ of viſion, is a diſeaſe abſolutely incurable. The *imperfect recent amauroſis*, particularly that which is *periodical*, generally admits of a cure, ſince it is moſt frequently connected with a diſordered ſtate of the ſtomach and primæ viæ, or is dependent on cauſes, which though they affect the immediate organ of viſion, may be removed

 without

without leaving any trace of disorganization, either in the optic nerve or retina.

In general, those cases of amaurosis may be regarded as incurable which have existed for several years, in persons advanced in age, and whose sight has been weak from their youth; those which have been slowly formed, at first with a morbid increase of sensibility in the immediate organ of vision, and afterwards with a gradual diminution of perception in this organ to complete blindness; those in which the pupil is immoveable, without being much dilated, but where it has lost its circular figure, or when it is so much dilated as to appear as if the iris were wanting, having also an unequal or fringe-like margin; in which the bottom of the eye, independently of the opacity of the crystalline lens, has an unusual paleness, similar to horn, sometimes inclining to green, reflected from the retina as if from a mirrour;* which are accompanied with pain of the whole head, and with a constant sense of tension in the eye-

* The retina of a sound eye is transparent, and, therefore, in any degree of dilatation of the pupil, the bottom of the eye is of a deep black colour. This unusual pallor then which accompanies the amaurosis, indicates that a considerable change has taken place in the substance of the optic nerve forming the retina, which, according to all appearance, is become thickened, and rendered permanently incapable of transmitting the impressions of light. This sign, therefore, is one of the most unfavourable.

ball;

ball; which have been preceded by great and protracted incitement of the whole nervous ſyſtem, and afterwards by general debility and languor of the whole conſtitution, as after the long abuſe of ſpirituous liquors, manuſtupration, or premature venery; thoſe which have been preceded or accompanied by attacks of epilepſy, or by frequent and violent hemicrania; which have come on in conſequence of violent and obſtinate internal ophthalmia, at firſt with an increaſed, but afterwards diminiſhed ſenſibility of the retina, and ſlowneſs of motion in the pupil; which, beſides being inveterate, are the conſequence of blows upon the head; which have been occaſioned by direct blows upon the eye-ball; which have appeared after violent contuſion and laceration of the *ſupraorbital* nerve,* whether this has taken place immediately after the blow, or ſome weeks after the healing of the wound of the ſupercilium; which have been occaſioned by extraneous bodies penetrating the eye-ball, as leaden ſhot,† &c.; thoſe which are derived from the confirmed lues venerea, in which the preſence of one or more exoſtoſes upon the forehead, upon the ſides of the noſe, or upon the maxillary bone,

* Of the numerous caſes of amauroſis of this kind, I do not know that any one has been cured, except that related by Valſalva, in his Diſſert. II. § XI.

† Neſſi, Inſtituzioni de Chirurgia, T. iii. page 282.

lead to the ſuſpicion that there may be alſo ſimilar exoſtoſes within the orbit: laſtly, thoſe which are conjoined with a manifeſt change of figure and dimenſion of the whole eye-ball, as when it is of a long oval figure, or of a preternatural bulk or ſmallneſs. Maitre-Jan certainly alluded to theſe cauſes of amauroſis, when he ſaid, *c'eſt rechercher la pierre philoſophale que de vouloir chercher des remedes pour guérir le goute ſereine; cette maladie eſt abſolument incurable.*

On the contrary, thoſe caſes of *recent imperfect amauroſis,* moſt frequently at leaſt, if not always, admit of a cure, which, although the patient be almoſt, or even completely deprived of ſight, have not been produced by any of thoſe cauſes which are capable of contuſing, or deſtroying, the organic texture of the optic nerve or retina; in which the immediate organ of viſion preſerves ſome, though little, ſenſibility to the light, whether in the direction of the axis of viſion or laterally; thoſe caſes of ſudden or recent amauroſis, in which, although the pupil is preternaturally dilated, it is not exceſſively ſo, and is regular in its circumference; behind which the bottom of the eye is of a deep black colour, as in a natural ſtate; which have not been preceded or accompanied by violent and continual pain in the head and eye-brow, nor by a ſenſe of conſtriction in the eye-ball; which have originated from violent anger, exceſſive

grief

grief or terror; thoſe which have ſucceeded an exceſſive fulneſs and crudity of the ſtomach, plethora either general or confined to the head, the ſuppreſſion of accuſtomed ſanguineous diſcharges from the noſe, uterus or hæmorrhoids; thoſe occaſioned by an evident metaſtaſis of variolous, rheumatic, herpetic, or gouty matter; which are the conſequence of profuſe loſs of blood; which are to be referred to a nervous debility not inveterate, in perſons who are young, and which is conſequently yet ſuſceptible of being remedied; thoſe produced by convulſions and violent efforts during a laborious parturition; thoſe which accompany the courſe or decline of acute or intermittent fevers; and thoſe, laſtly, which are *periodical*, or which come on and diſappear at intervals, every day, every three days, every month, or at a certain ſeaſon of the year.

By an attentive examination of the nature and cauſes of the imperfect amauroſis which admits of a cure, it is found, from the careful obſervations of Schmucker and Richter, that this diſeaſe is moſt frequently derived from a morbid excitement or irritation in the digeſtive organs, either alone or accompanied with general nervous debility, in which the eyes participate ſympathetically. According to theſe principles, in the greater number of caſes of *recent imperfect amauroſis*, the principal indication of cure which the

ſurgeon ought to fulfil in the treatment of this diſeaſe, is that of unloading the ſtomach and primæ viæ of the ſaburræ and morbific ſtimuli; and afterwards of ſtrengthening the gaſtric ſyſtem, facilitating the digeſtion, and at the ſame time exciting the whole nervous ſyſtem, and particularly that of the eyes, which are affected and rendered torpid by a ſympathetic connection.

With reſpect to the firſt part of the treatment of the *imperfect amauroſis*, the intention is perfectly anſwered by emetics and internal reſolvents. In the claſs of emetics, experience has taught that the *antimonium tartarizatum* is preferable to every other, and that when given afterwards in ſmall and divided doſes, it anſwers the purpoſe of a reſolvent medicine, the action of which may be increaſed by conjoining it with gummy or ſaponaceous ſubſtances. In the treatment of the imperfect amauroſis, therefore, which is moſt frequently ſympathetic, and depending on acrid matters in the primæ viæ, it will be proper at firſt, in the greater number of caſes, to diſſolve for an adult, 3 grains of tartarized antimony in 4 ounces of water, of which 2 table-ſpoonsful may be taken every half hour, until it produces nauſea, and afterwards abundant vomiting. On the following day he ſhould be ordered to take the reſolvent powders, compoſed of one ounce of the cryſtals of tartar and

one

one grain of the tartarized antimony, divided into ſix equal parts, of which the patient ſhould take one in the morning, another four hours afterwards, and the third in the evening, during eight or ten ſucceſſive days. This medicine will produce a ſlight nauſea, and ſome evacuations of the bowels more than uſual, and perhaps, after ſome days, even vomiting. But if, during the uſe of this opening powder, the patient make ineffectual efforts to vomit, and complain of a bitter taſte and want of appetite, without any amendment of the ſight, the emetic ſhould be repeated, and even a third and fourth time, if the preſence of the morbific ſtimuli in the ſtomach, bitter taſte, tenſion of the hypochondria, acid eructations, and tendency to vomit require it. For it not unfrequently happens, that the patient, on the firſt evomition, throws up only water with a little mucus, but on repeating the emetic, after the nauſeating powder has been uſed for ſome days, a conſiderable quantity of yellowiſh green matter will be thrown up, which will greatly relieve the ſtomach, head, and eyes.

The ſtomach being cleared, the opening pills of Schmucker ſhould be preſcribed,* or thoſe of Richter,

* R. Gum. Sagapen.
Galban.
Sap. venet. an. drachmam j.
Rhei opt. drachmam unam et ſemis.

Richter.* The phænomena which are usually observed to happen in consequence of this treatment, are the following: the patient, after having vomited copiously, feels more easy and comfortable than before. Sometimes on the same day on which he has taken the emetic he begins to distinguish the surrounding objects; at other times this advantage is not obtained till the 5th, the 7th, or 10th day; and in some cases not till some weeks after the adhibition of the emetic, and the uninterrupted use of the opening powders or pills. As soon as the patient begins to recover his sight the pupil is found less dilated than before, and is also more contracted when exposed to the vivid light of a candle; and in proportion as the power of vision augments, this contraction and mobility of the pupil increases. Upon the whole, the cure

Antim. tartariz. grana xvj.
Suc. liquirit. drachmam unam F. Pilul. gran. unius.

The patient should take 15 of these pills, morning and evening, for the space of 4 or even 6 weeks.

* R. Gumm. Ammoniac.
Aff. fœtid.
Sap. venet.
Rad. Valerian, s. p.
Summit. arnicæ an. drachmas duas.
Antim. tartariz. gran. xviij. F. pilulæ granorum duorum.

The patient should take 15 of these pills 3 times a day for some weeks.

is

is ſeldom completed in leſs than a month, during which time the uſe of local remedies calculated to excite the languid action of the nerves of the eye ſhould not be neglected, as will be hereafter mentioned.

When the ſurgeon ſhall have ſufficient reaſon to believe, that by means of theſe remedies the offending matters which ſtimulated the ſtomach have been perfectly eliminated, and eſpecially after the patient has, in a great meaſure, regained his ſight, the plan of treatment ſhould be directed to ſtrengthen the ſtomach, and invigorate the nervous ſyſtem in general, and that of the nerves of the eye in particular. He ſhould therefore preſcribe a powder compoſed of one ounce of the cinchona and half an ounce of valerian root, divided into ſix equal parts; of which the convaleſcent ſhould take one in the morning and another at night, in any convenient vehicle, and ſhould continue the uſe of this medicine for at leaſt five weeks. In the mean time he ſhould live on tender ſucculent food, and cooling broths, ſhould take a moderate quantity of wine, and uſe gentle exerciſe in a ſalubrious air.

As a local application, both during the continuance and decline of the imperfect amauroſis, in order to rouſe the languid action of the nerves of the eye, the vapour of the aqua ammoniæ puræ properly applied to the affected eye is of the higheſt

higheſt advantage. This remedy is employed by placing a ſmall veſſel containing it near the patient's eye; ſo that the very penetrating vapour with which it is ſurrounded may excite a pricking ſenſation in that organ; by the action of which, in leſs than half an hour, the eye which is expoſed to it, becomes red and waters copiouſly. It is then proper to deſiſt from it, and repeat it three or four hours afterwards, and continue it in this manner until the amauroſis is perfectly cured. If both the eyes are affected with this diſeaſe, it is unneceſſary to obſerve that it is requiſite to have two ſmall veſſels filled with the aqua ammoniæ puræ, or if one only be employed, that it will be neceſſary to hold it firſt to one eye and then to the other, until both water abundantly, and become red. It is neceſſary to renew the aqua ammoniæ puræ every 3d day, in order to preſerve its activity. This very uſeful application ought to be employed from the commencement of the treatment of the imperfect amauroſis, or at leaſt immediately after the patient's ſtomach has been unloaded of the offending matters, by means of an emetic, and continued for a length of time, even after the amauroſis is diſſipated. Thilen,* beſides many others, aſſures us, that he has alſo uſed this local remedy in ſuch caſes

* Mediciniſche und chirurgiſche Bemerkungen § Amauroſis.

with

with advantage. The action of the vapour of the cauſtic volatile alkali applied to the eyes affected with incomplete amauroſis, may be alſo aſſiſted by other external ſtimuli applied to parts of the body which have a cloſe conſent with the eyes, as bliſters to the neck, friction upon the eye-brow with the anodyne liquor, and irritation of the nerves of the internal noſtrils by means of ſternutatory powders, as that compoſed of two grains of the hydrargyrus vitriolatus, and a ſcruple of the powder of the leaves of betony; and laſtly, the electric fluid. Electricity has been propoſed as one of the principal means of curing the amauroſis, but experience has ſhown that no confidence is to be placed in it, except as a ſecondary remedy; and Mr. Hey,* one of the moſt zealous promoters of this practice, confeſſes, that electricity is only uſeful in caſes of recent amauroſis, and moſt frequently only when combined with appropriate internal remedies, among which, reſolvents are the principal.

With reſpect to the *imperfect periodical amauroſis*, every practitioner would be diſpoſed to believe that the cinchona ought to be the ſpecific; experience, however, has proved the contrary, and convinced us that this excellent remedy, which is ſo efficacious in intermittent

* Medical Obſervations and Enquiries, vol. v. page 26.

fevers

fevers and other periodical diſeaſes, rather aggravates the *imperfect periodical amaurosis*, and renders its attacks more frequent, and of longer duration than before. This diſeaſe, on the contrary, is moſt frequently cured in a ſhort time, by emetics and internal reſolvents; and laſtly, by corroborants and the cinchona, which before was uſeleſs or injurious.

This plan of treatment in the *imperfect amaurosis* of recent date, is, in the greater number of caſes, employed with perfect ſucceſs, ſince the diſeaſe, as it has been remarked before, is only ſympathetic, and principally dependent upon the morbid ſtate of the digeſtive organs. There are, however, as I have alſo obſerved, caſes of imperfect amauroſis, to the formation of which, beſides the more common cauſes enumerated, others concur, which require the employment of particular methods of treatment, beſides thoſe which I have mentioned. Such is, for inſtance, the *imperfect amaurosis*, which takes place ſuddenly, in conſequence of exceſſive heat, inſolation, violent anger in plethoric perſons, which demands, before every other meaſure, the general and partial abſtraction of blood, cold fomentations to the eyes, and the whole head; afterwards an emetic, or the purges with the kali tartarizatum, or antimonium tartarizatum, in ſmall doſes. Schmucker relates, that he had frequently, by means of bleeding and an emetic,

reſtored

reſtored the ſight to ſoldiers who had loſt it by making forced marches, when heavily loaded, in very hot weather. An emetic, after the evacuation of blood, is the more indicated, as in all theſe caſes the patient complains at the ſame time of a bitter taſte, of tenſion of the hypochondria, and continual nauſea. Richter mentions a prieſt, who being violently enraged, became inſtantly blind, and to whom having given an emetic the next day, on account of his having evident ſymptoms of bilious ſaburræ, he recovered his ſight the ſame day.

So likewiſe, in the treatment of the recent imperfect amauroſis, from a ſudden ſuppreſſion of the catamenia, the principal indication previouſly to the uſe of an emetic, is evidently that of reproducing the diſcharge of blood from the uterus, by means of leeches applied to the internal ſurface of the labia pudendi, and by pediluvia; and afterwards that of a vomit, of the opening pills before mentioned, or thoſe of Bekker, or thoſe compoſed of a grain of aloes and two of myrrh and ſaffron. If theſe ſhould not ſucceed in reproducing the menſtrual flux, much confidence may be placed in electric ſhocks paſſed from the loins through the pelvis in all directions, and from that part to the thighs and feet repeatedly, and without abandoning the hope of ſucceſs, although the good effects of this treatment ſhould not be evident for ſome weeks,

weeks, ſince I am perſuaded from experience, that it is one of the moſt powerful means which we poſſeſs, both of reproducing and accelerating the diſcharge of blood from the uterus.

In the treatment of the imperfect amauroſis alſo, occaſioned by the ſuppreſſion of an habitual profuſe hæmorrhoidal flux, and accompanied with tenſion of the hypochondria, congeſtion of blood in the head and eyes, difficult reſpiration and crudities of the ſtomach, previouſly to the uſe of an emetic, the moſt efficacious method of treating the blindneſs is that of the application of leeches and warm fomentations, to the hæmorrhoidal veins, in order to obtain a copious diſcharge of blood from them; afterwards an emetic will be neceſſary, and the opening pills of Schmucker, or inſtead of them, thoſe compoſed of aloes.

So in the treatment of the recent imperfect amauroſis produced by the variolous, rheumatic, herpetic, or gouty metaſtaſis, or from the impetigo of the head imprudently repelled, the ſurgeon's attention ſhould be directed to eliminate the acrid matters ſtimulating the ſtomach, and at the ſame time determine the peccant humour from the eyes to ſome other part, by means of a conſenſual irritation excited in the neck by bliſters or ſetons, or bliſters to the arms, hands, or feet; and in the caſe of impetigo of the head, or of herpetic eruptions imprudently repelled,

pelled, after the ſtomach has been unloaded of the ſaburræ, it will be very uſeful to give Huxham's antimonial wine, with the extract of aconite, the extract of aconite with calomel, and the golden ſulphur of antimony (ſulph. antimon. præcip.) of the third precipitation, in divided doſes, the kermes mineral, the decoction of the woods, and the warm-bath.

The method of curing the imperfect amauroſis, in conſequence of fevers improperly treated; that derived from deep grief, fear, profuſe hæmorrhage, profound meditation, or forced and intenſe exerciſe of the eyes upon very minute or bright objects, does not differ at all, or very little, from that which has been already delivered; and conſiſts principally in removing the ſordes of the ſtomach, and afterwards in ſtrengthening the nervous ſyſtem in general, and particularly that of the eyes.

Indeed, in this conſenſual *imperfect amauroſis*, in conſequence of fevers improperly treated, the the practitioner's attention is immediately called to the morbid ſtate of the organs of digeſtion; as in this diſeaſe, beſides the blindneſs or great diminution of ſight, the countenance appears pale and tumid, the digeſtion is ſlow, the appetite wanting or depraved, there is a bitter taſte in the mouth, vertigo of the head, diſturbed ſleep, and a turgid abdomen with flatulence. In this combination of circumſtances, nothing contributes more to

the reſtitution of the patient's ſight than the uſe of an emetic, and the reſolvent pills; afterwards the cinchona, bitters, preparations of ſteel, and externally the vapour of the aqua ammoniæ puræ.

Deep grief and terror have a direct action, as it were, at the ſame time, upon the nerves of the eyes and the organs of digeſtion, the function of which latter is ſo perverted by theſe affections, that bilious acrid ſaburræ ſpeedily accumulate in them, from the ſtimulus of which the nervous ſyſtem in general, and particularly that of the eyes, is conſenſually affected, and, I might ſay, almoſt rendered torpid. If, therefore, an emetic be indicated in any caſe of recent *imperfect amauroſis*, as one of the principal means of diſſipating incomplete blindneſs, it is certainly in the caſe where the diſeaſe is derived from grief or terror; the good effects of which have been repeatedly confirmed by experience. When the ſtomach and inteſtines are unloaded of the bilious acrid matters, by means of the tartarized antimony, or reſolvent pills, the treatment in this caſe alſo is completed by the cinchona, conjoined with valerian root; and by fumigations of the aqua ammoniæ puræ; by nouriſhing and eaſily-digeſtible food; by diverting the mind and directing it to agreeable objects; and by moderate exerciſe of the whole body. It is to be obſerved only, that the imperfect

perfect amaurosis, occasioned by fear, demands the continuation of these remedies for a much longer time than that produced by grief.

The *incomplete amaurosis*, which arises from general nervous debility, in consequence of profuse hæmorrhage, convulsions from *inanition*, or long continued application to deep studies, especially by candle-light, is less in reality an *amaurosis* than a weakness of sight, from exhausted energy of the nerves, particularly of those which constitute the immediate organ of vision. This inconvenience is cured or diminished, if recent and in young persons, by small and divided doses of the tincture of rhubarb, in order to cleanse the stomach and primæ viæ; afterwards by corroborant and cardiac remedies, and by the patient desisting from whatever debilitates the nervous system, and consequently the sight. Lastly, when the stomach is cleared of the saburræ, the decoction of cinchona with valerian may be prescribed with advantage, the infusion of quassia, with the addition of a few drops of vitriolic æther in each dose, nutritious animal food of easy digestion, and viper broth. The aromatic spirituous vapour mentioned in the chapter on ophthalmia may be usefully employed as a local application, and if this should not succeed, much advantage may be derived from that of the aqua ammoniæ puræ. The patient should take exercise on foot, horseback,

or in a carriage, in a pure and dry air, and in warm weather he ſhould uſe ſea-bathing. He ſhould avoid as much as poſſible mental anxiety, and ſhould not fix his eyes on very minute or lucid objects.* In proportion as he takes nouriſhment and regains ſtrength, and the action of the nervous ſyſtem in general is invigorated, his ſight will gradually amend; to preſerve and improve which, he ſhould keep in mind, above all, to maintain the tone and vigour of the ſtomach, and to moderate the impreſſion of light upon the eyes, which he may eaſily do by never expoſing himſelf to a vivid light, unleſs when they are defended by plain green glaſſes.

* It occaſionally happens that patients, in theſe caſes, cannot look at a very near object, with one or both the eyes, without experiencing fatigue and pain in one or both of them, while they feel no inconvenience from looking at an object at a certain diſtance. And when the difficulty which they find in looking at a near object is confined to one eye, it is accompanied with ſtrabiſmus and double ſight. This depends upon a debilitated ſtate of the muſcles of the eyes, in conſequence of which the patient cannot conveniently accommodate the eye-ball to very near objects, or maintain it for a length of time in this poſition; and when the debility is confined to the muſcles of one eye, this being unable to concur in the actions of the other, ſtrabiſmus and double viſion are the neceſſary conſequences. This inconvenience is alſo remedied by the general and local corroborants before mentioned, and by avoiding to ſtrain the muſcles of the eyes. And if the debility be confined to one eye only, and occaſion the ſtrabiſmus, it will be advantageous to keep the affected eye covered for ſome time.

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The *hemeralopia* or *nocturnal blindneſs* is, ſtrictly ſpeaking, only an *imperfect periodical amauroſis*, moſt frequently ſympathetic of diſorder of the ſtomach, the attacks of which ſupervene towards the evening, and diſappear in the morning. This diſeaſe is in ſome countries endemical, and in others epidemical at certain ſeaſons of the year.

Thoſe who are affected with this diſeaſe, ſee objects at ſun-ſet as if covered with a greyiſh veil, which by little and little is converted into a denſe cloud, interpoſed between them and the ſurrounding objects. The pupil both during the day and the night is more dilated and leſs moveable than it is uſually in a ſtate of health. In the greater number of caſes, however, the pupil is more or leſs moveable in the day, and always enlarged and immoveable during the night. If the patient be placed in a room faintly lighted by a candle, where other perſons can ſee ſufficiently well, the objects are either diſcerned with difficulty, or cannot be ſeen at all, or he can only diſtinguiſh light from darkneſs; much leſs is he able to diſtinguiſh any thing by moonlight. On the approach of morning he recovers his ſight, which remains perfect during the whole day, until ſun-ſet.

The diſeaſe is generally cured, and frequently alſo in a ſhort time, by treating it in the ſame manner as the imperfect amauroſis; by emetics,

the opening powders or pills, and by blisters to the neck; and locally, by the vapour of the caustic volatile alkali; and lastly, by the cinchona conjoined with the valerian root. In cases where the disease has been preceded by plethora or suppressed perspiration, bleeding, and sudorifics are also indicated.

By this method of treatment I succeeded in curing three patients attacked with it. The first was a boy 14 years of age, who, for several weeks, had used fumigations of boiled sheep's liver without advantage. The second was a waterman, and the third a husbandman of our neighbouring rice-fields. They were between 30 and 40 years old, each meagre, with a yellowish tumid countenance. The boy after having vomited copiously, by means of a grain and a half of tartarized antimony, dissolved in four ounces of water, and taken in small quantities in the space of two hours, made use of the opening powders during the following days; which occasioned some nausea, and two, or sometimes three copious motions every day. On the 5th day at night, he began to distinguish the surrounding objects by the very weak light of a lantern. The vapour of the caustic volatile alkali was used constantly from the first day after the emetic, and on the 16th day he was perfectly cured. The waterman, after three doses, vomited a large quantity of yellowish viscid matter. He afterwards used the open-

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ing powders, which, on the third day, produced a ſecond vomiting, and expoſed his eyes regularly every four hours in the day to the action of the vapour of the cauſtic volatile alkali. He did not begin till the 11th day to diſtinguiſh objects at night by the weak light of a candle. The huſbandman vomited only once in large quantity, but was afterwards greatly nauſeated by the opening powders for nine ſucceſſive days, and had every day a copious evacuation from the bowels of greeniſh matter; he uſed alſo the vapour of the cauſtic volatile alkali, as a local application, and on the 14th day, at night, began to ſee by the light of a candle, and continued to acquire a greater power of ſeeing objects at night, until he was perfectly well. Towards the end of the treatment I ordered this patient to take the cinchona with valerian root.

But the moſt ſpeedy recovery that I have known, was in the ſpring of the preſent year, in the caſe of Mauro Bonini, of Donelaſco, a robuſt farmer, 22 years of age. In the month of March he began to diſcover, that at ſun-ſet he could only diſtinguiſh objects very imperfectly. This indiſpoſition increaſed to ſuch a degree, that in the beginning of May, he became, towards night, almoſt entirely blind. On the 10th of May he came to this hoſpital. On examining him in the day-time I found the pupil of both his eyes unuſually dilated, and al-

most immoveable; and towards night I made the experiment, and satisfied myself that he was blind. The patient complained of a bitter taste, heaviness of the head, and his tongue was furred. On the 11th of May I prescribed an emetic, which did not produce all the effect that I expected; on the following day, therefore, I gave him one more powerful, composed of ʒjss of ipecacuanha, and gr. ij of tartarized antimony. This caused him to vomit a large quantity of yellowish green matter; the patient immediately afterwards found his head relieved, and the bitter taste removed; the pupil of both eyes was a little contracted, and appeared to be in a slight degree sensible to the impression of a vivid light. He began to use the vapour of the caustic volatile alkali externally. On the evening of the same day the patient's sight appeared to be improved. On the 13th no remedy was employed, except the vapour. On the 14th the patient complained again of a bitter taste, and his tongue appeared furred. I ordered him to take the opening powders every three hours, which produced nausea and repeated evacuations from the bowels. The use of the vapour was continued. Towards the evening the patient distinguished very well all the objects which were presented to him. On the 16th the symptoms of indigestion entirely disappeared, and the pupil of both eyes was contracted,

contracted, as in a ſtate of health. On the 17th the patient left the hoſpital perfectly cured.

The ancients have very highly commended, in the treatment of this diſeaſe, fumigations of ſheep's liver roaſted, conveyed to the eyes by means of a funnel, as well as the eating of the liver thus prepared. This remedy, even at the preſent time is generally accredited, not only on the aſſertions of the vulgar, but alſo of profeſſional perſons; and ſome writers add, that it ſucceeds in a ſurpriſing manner among the Chineſe, where this diſeaſe is ſaid to be very frequent. I cannot relate any caſe of my own in confirmation of this; in the boy before mentioned, it appeared to me to be of no advantage. If, however, the efficacy of this remedy is a matter of fact, we may boaſt of having another means of curing the *nocturnal blindneſs*,* beſides that which I have delivered.

Celſus,

* It was an old ſoldier who imparted to his comrades the remedy which I am about to deſcribe, when there was ſo large a number affected with nocturnal blindneſs at Straſbourg in 1762. The ſoldiers cook a ſlice of ox's liver, weighing about half a pound, in an earthen pot newly varniſhed, and juſt large enough to hold four pints of water. When the liver is done, ſo as to be fit to eat, and the vapour is of a ſupportable heat, they place the pot upon the bed, and inclining the head very near it, they throw over a covering ſo as exactly to encloſe them. They remain there until the liver ceaſes to produce any vapour, or the difficulty of breathing obliges the patient to come out. One application only, is, in general, ſufficient

Celsus,* in the chapter on the Mydriasis, adds the following words. *Quidam sine ulla manifesta causa subito obcæcati sunt. Ex quibus nonnulli cum aliquandiu nihil vidissent, repentina profusione alvi lumen receperunt. Quo minus alienum videtur et recenti re, et interposito tempore, medicamentis quoque moliri dejectiones, quæ omnium noxiam materiam per inferiora depellant.* This passage of Celsus relates, in my opinion, not only to the treatment of the dilated pupil, but also to that of the imperfect amaurosis, which takes place suddenly; and it appears to me to merit the attention of practitioners.

The first of these observations made by Celsus, that persons affected with amaurosis for some time, have recovered their sight on the supervention of a diarrhœa, appears to be con-

sufficient for a radical cure. I have known obstinate soldiers who have been unwilling to do any thing for three weeks: and I have sometimes even permitted it, in order to ascertain whether the remedy was as efficacious in an inveterate as a recent affection. I have found no difference, and as I now believe, I have made every necessary experiment to convince myself, I oblige them to submit to this treatment whenever I am aware of it. I shall not subjoin the names of those who have been cured in this manner. There are at present in the regiment more than 250 men who have been treated in this manner, and even more than 60 at the end of March, and the beginning of last April, 1787.

Dupont Mémoire sur la goutte sereine nocturne épidémique, ou nyctalopie.

* De Medicin. lib. vi. cap. 37.

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firmed by a caſe related by Dr. Pye,* of a man 40 years old, who had been afflicted for two months with a periodical amauroſis, which, for a certain length of time, attacked him regularly every evening, afterwards irregularly and at different intervals, with great dilatation of the pupil, and ſuch obſcurity of viſion towards night that he could not even diſtinguiſh the light of a candle. The man was ſeized with a diarrhœa. Dr. Pye ordered him the ſaline mixture, which he took for nine days; and afterwards an electuary, compoſed of the cinchona, nux moſchata, and ſyr. e cort. aurant. Theſe two articles were added to the cinchona on account of the diarrhœa, which ſtill continued. On the ſecond day of uſing this electuary the diarrhœa increaſed, and the patient vomited copiouſly; after which he recovered his ſight almoſt inſtantly, ſo as to diſtinguiſh objects as well in the night as in the day. The diarrhœa continued, and after having employed the electuary for two days it was neceſſary to ſuſpend the uſe of it. The diarrhœa was accompanied with a very violent fever, and it was remarked, that in the acme of the fever, although the patient became extremely deaf, he did not loſe his ſight either day or night. Dr. Pye does not ſtate what means were employed for moderating the fever, but only that it proved

* Med. Obſerv. and Enquiries, vol. i. art. 13.

fatal.

fatal. The fact, however, is certain, that this spontaneous evacuation of the bowels had entirely relieved the patient of the periodical imperfect amaurosis. I have no doubt, that if an attentive examination were made of the numerous cases recorded in medicine, a great number of similar facts might be met with, proving the influence which offensive substances, stimulating the stomach, have upon the organ of vision, and consequently of how much advantage the spontaneous evacuations of the bowels may be in the cure of this disease.

But, however rare or little noticed may be the examples of incomplete amaurosis disappearing, in consequence of spontaneous vomiting or copious dejections, promoted merely by the powers of nature; we are now in possession of so many cases of the successful treatment of this disease, by means of such evacuations procured artificially with emetics and internal resolvents, that no doubt can be longer entertained of the justness of the second part of Celsus's observation, relative to their propriety in this disease, *et recenti re, et interposito tempore, medicamentis quoque moliri dejectiones, quæ omnem noxiam materiam per inferiora depellant.*

The accurate cases related by Schmucker and Richter, afford numerous certain and satisfactory proofs of this; but the confidence which we

we repoſe in the method of treating the imperfect and the periodical amauroſis now delivered, muſt be increaſed, if we reflect that the moſt authentic of the ancient writers, in the greater number of theſe caſes, have alſo cured this diſeaſe, by no other means than thoſe of emetics and purgatives, although in their writings they have attributed the ſucceſs of the treatment to other cauſes, or to the efficacy of other remedies which they preſcribed conjointly with the emetics and reſolvents. Galen,* Ætius,† Ægineta,‡ Actuarius,§ Rhazes,‖ Avicenna,¶ in ſpeaking of the treatment of this

* Lib. de oculis, part iv. cap. 11, 12.

† Sermo ſeptimus, cap. 48. 52. cap. 46. de nemeralopia. Si vero per hæc non ſucceſſerit, rurſus purgatorium dandum eſt, quale eſt hoc. Scammoniæ obol. iij, caſtorei obol. ij, ſalis obol. iij. In debilioribus autem ſcammoniæ obol. ij, injice. Talis autem purgatio ſæpe et veſtigio liberavit, aut multo meliorem conditionem induxit. Poſt paucos dies dandum eſt purgatorium pituitam et bilem ducens.

‡ Lib. iii. cap. 48.

§ De method. med. lib. iv. cap. 11. poſt ſanguinis miſſionem ſternutationes movendæ ſunt, et ante cibum vomitibus utendum.

‖ De ægritud. ocul. cap. 4. Cum prolongatur ſtatus morbi, provocentur ſternutationes, et vomitus jejuno ſtomacho; deinde curetur cum collyriis valentibus ad hoc.

¶ Lib. iii. fen. 3. tractat. 4. Quandoque hoc fit propter communitatem ſtomachi et cerebri. . . . . Quod ſi fuerit ab humiditate, adminiſtrantibus tunc illud quod reſolvit poſt evacuationes. Vomitus autem qui ſit cum facilitate, eſt ex iis, quæ conferunt.

diſeaſe,

diſeaſe, recommended bleeding, the uſe of emetics, when the patient is faſting, or the evacuation of the bowels by purgatives or clyſters, and ſternutatories. This practice was followed by all the phyſicians who ſucceeded them, and was the ſame at the time of Foreſtus* and Timeus.† Hildanus,‡ who attributed much efficacy in the treatment of this diſeaſe to a ſeton made in the neck, ſtates, however, that he had only employed this method after the repeated uſe of cathartics. The ſame thing is met with in the works of Smetius,§ Platerus,‖ Adolphus,¶ and Trew.**

St. Yves,†† one of the moſt diſtinguiſhed oculiſts of his time, mentions an eccleſiaſtic, who, a few days after he had loſt his ſight, having given him an emetic, and opened the jugular vein, recovered his ſight; which was afterwards ſtrengthened by means of the vapour of the ſpirit of wine, properly directed to the eyes. He alſo ſtates, that he reſtored the ſight of a young canon by the repeated uſe of purges, cooling broths, and the application of ſpirituous va-

* Obſ. et cur. med. lib. xi. obſ. 32. ſchol. obſ. 38.

† Caſus medicinal. lib. i. caſ. 24.

‡ Centur. 1 obſerv. 24. Centur. 5. obſ. 13.

§ Miſcellan. med. page 546.

‖ Praxis. med. page 104.

¶ Act. n. c. vol. ii. obſ. 87.

** Commerc. Norimberg. T. 7. an. 1737. N. 1.

†† Traité des Maladies des yeux, chap. 27, 28.

pours;

pours; and expreſsly ſtates, that he had frequently ſucceeded in curing the *amauroſis* whenever he had undertaken the treatment of it, immediately on its acceſſion, by taking away blood, and ordering an emetic to be taken once or twice in the interval of two days.

Heiſter* imagines that he had cured an amauroſis by means of ſalivation only. From the narration which he gives, however, it appears, that previouſly to the patient's uſing mercury, he ordered him an hydrogogue purgative; and that the following day, on his complaining of nauſea and inclination to vomit, an emetic compoſed of two grains of tartarized antimony and a ſcruple of ſugar, by means of which he vomited copiouſly, and his nauſea was relieved; that after all this he ordered him ſome pills made with calomel and the extract of fumaria, and the ſize of a bean of mercurial ointment to be rubbed into the parotid glands; and that on the 9th day, the ſalivation having ſcarcely commenced, the patient could diſtinguiſh light from darkneſs. Now from this account, and from comparing it with what we know at preſent, of the efficacy of emetics and purgatives in the cure of this diſeaſe, it is eaſy to infer, that the cure of the imperfect amauroſis obtained by Heiſter is not to be attributed to

* Syſtem of Surgery, T. 1.

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the mercurial ſalivation, but to the removal of the offenſive matters ſtimulating the ſtomach.

The ſame writer* alſo, in a woman affected with amauroſis, and threatened with complete blindneſs from exceſſive grief, and from having fixed her eyes too long on lucid objects, obtained a cure by means of a ſingle bleeding, and ſome cathartic pills compoſed of calomel and jalap. He† likewiſe reſtored the ſight of a ſervant, which had gradually diminiſhed without any apparent diſeaſe in the eye, but who complained of continual nauſea, by preſcribing to him a powder compoſed of 25 grains of ipecacuanha, and ten grains of vitriolated kali, to be taken in the morning; and an infuſion of Euphraſia, hyſop, and ſaſſafras during the day, beſides a bliſter to the neck, and a ſtimulant reſolutive collyrium.

Ribe‡ mentions a young man, 22 years of age, who had loſt his ſight three months before he was examined by him, which was reſtored by the uſe of an emetic repeated ſeven times at different intervals. Helvig§ and Schroëk‖ have tranſmitted to us ſeveral hiſtories of the imperfect amauroſis, ſympathetic of the

* Med. chirurg u. anat. Wahrnehm. 1. Band.

† Loc. cit. Band 75.

‡ Act. Svecic. vol. i. Trim. 1. N. 1.

§ Obſerv. phyſic. med obſ. 33.

‖ Miſcellan. nat. cur. decad. 2. an. 5. obſ. 217.

ſtomach

ſtomach, and primæ viæ, cured by reſolvent purgatives only.

Vandermonde * relates the hiſtory of a girl, eight years old, who, from ſaburræ and worms in the ſtomach, had recently loſt her viſion and ſpeech. The preſence of worms in this caſe was indicated by a rapid movement of the tongue, like that of a ſerpent; and continual expiration by the noſe, great anxiety, and copious perſpiration of the head. The girl took an emetic, and brought up, with other matters, a round worm half a foot long; ſhe then took purgatives, conjoined with anthelmintics, and very quickly recovered her ſight and ſpeech.

Fabre † mentions a certain Jean Barricot, who, ten days after he had been afflicted with the colic, loſt the ſight of both his eyes, and who had loſt blood twice without advantage, and had uſed a collyrium of roſe water and the white of eggs. Fabre preſcribed to the patient four grains of tartarized antimony, and two days afterwards, a draught made with half an ounce of ſenna, half a dram of the *pulvis e tribus*, and one ounce of manna; in two days more four grains, as before, of the tartarized antimony, and ſo for nine days following; afterwards ſome pills compoſed of calomel and ſcammony, an infuſion of euphraſia, and the ſudorific and laxative

* Journal de med. de Paris. T. x.

† Ibidem T. xx.

ptiſan

ptisan of the Paris pharmacopœia for eight days. The vapour of spirit of wine and coffee was applied externally, directed to the eyes by means of a funnel. On the 4th day of this treatment, Barricot began to distinguish the light from darkness; on the 12th day he could distinguish colours at a small distance; and by the 20th, recovered his sight entirely.

Thilen* relates two very interesting cases of imperfect amaurosis, cured by the use of the tartarized antimony, first as an emetic, and afterwards as an opening medicine, sometimes given alone, at other times conjoined with saponaceous substances, and the extract of *arnica*.

Whytt† mentions a woman, whose sight was greatly diminished whenever she had acidity of the stomach. She was relieved from this inconvenience by means of an emetic, some absorbent powders, and bitter stomachic corroborants. I know also a very respectable person, who happened frequently, before he was aware of the cause, to experience for some hours after dinner a great dimness of sight, approaching to a degree of blindness, in consequence of eating fish fried in olive oil. It is very remarkable that the *digitalis purpurea*, the *stramonium*, the infusion of tobacco, and many other similar articles,

* Medicinische und chirurgische Bemerkung. § Amaurosis.

† Delle affez. ipocond. ed ister. cap. 1.

produce blindneſs almoſt as ſoon as they are taken into the ſtomach.

In the *French Mercury* for the year 1756,* there is an account of a cure performed by Fournier, of ſeveral perſons affected with *hemeralopia*. The firſt were three ſoldiers, to whom, after being bled, he gave an emetic. On the following day, as they yet complained of heavineſs of the head and nauſea, he repeated the bleeding and emetic. By theſe means all the ſymptoms were removed, and the three ſoldiers were cured. Fournier employed the ſame method of treatment, with equal ſucceſs, in eight other ſoldiers, belonging to the ſame garriſon, attacked with this diſeaſe.

Pellier † cured the *hemeralopia* in the captain of the ſhip Micetti, with ſmall doſes of tartarized antimony, bliſters to the neck and cooling aperient ptiſans. The ſame writer aſſerts,‡ that he had frequently cured the recent imperfect amauroſis, by ſmall doſes of tartarized antimony only (émétique en lavage), and by local aromatic fumigations.

To this ſeries of facts, and many others which may be found recorded on this ſubject, not only by the ancient but by modern ſurgeons, I ſhall add ſome caſes of my own, to prove, in the moſt

* Fevrier, page 168.

† Recueil de mem. et. obſ. ſur l'œil, obſ. 132.

‡ Ibidem, obſerv. 136. 138.

convincing manner the utility and efficacy of the method of treating the recent imperfect amaurosis here recommended, which, as I have already stated, is only an affection derived from sympathy with the stomach,* depending upon morbific stimuli in the organ of digestion, with nervous debility, either general or confined to the eye.

It is to be remarked, that in the treatment of the recent imperfect amaurosis, both among the ancients and the greater part of the moderns, the general, or partial, evacuation of blood is very frequently and indiscriminately made to precede the use of an emetic or cathartic. Further observation on the treatment of this disease has taught us that it is not to be regarded as a general rule, and that the abstraction of blood ought only to be employed in those cases, in which it is clearly indicated by particular circumstances; as in cases of recent imperfect amaurosis accompanied with affections of the stomach, and at the same time plethora, either general, or confined to the head, in young and strong subjects, or in persons in whom the amaurosis has been produced or kept up by the suppression of some accustomed sanguineous evacuation. In other cases the abstraction of

* Experientiæ suffragium firmum est, ut in omnibus capitis et nervorum morbis, sic etiam in iis qui oculos detinent, ventriculi et virtutis ipsius digestivæ rationem esse habendam. Hoffman Differt. de morbis præcipuis recta medendi ratione.

blood is not indicated; and in perſons extenuated and affected with general nervous debility, afflicted with exceſſive grief, or where there is a diſpoſition to convulſions, it may rather prove injurious.

So likewiſe with reſpect to the ſelection of remedies proper for unloading the ſtomach and inteſtines of the *morbific fomes*, and at the ſame time rouſing the activity of the nervous ſyſtem generally, it is worthy of remark, that, except the caſe above mentioned, of perſons very delicate and extenuated, in whom the tincture of rhubarb is more properly indicated, the antimonium tartarizatum as a vomit, or in divided doſes as a reſolvent, either alone or combined with gummy and ſaponaceous ſubſtances, ſo as to excite nauſea, and gently open the bowels, is preferable to the draſtic medicines, and acrid purging clyſters, which were formerly in uſe. It is not improbable, that in the treatment of the recent *imperfect amauroſis*, produced by ſaburræ, and accompanied by ſuppreſſion of perſpiration, with metaſtaſis to the eyes, the tartarized antimony given in ſmall and repeated doſes is preferable to every other internal purgative, from its particular mode of action upon the ſtomach, and ſympathetically upon the whole ſyſtem; not only by expelling from the ſtomach and inteſtines the acrid bilious impurities, but by its peculiar ſtimulus, ſtrengthening

the activity of the nervous system, and restoring the perspiration and the action of the absorbent vessels.

## Case LXVIII.

Giacomo Migliavacca, of Pavia, 32 years of age, by trade a carpenter, of a weak constitution and emaciated, towards the middle of March 1798, after excessive grief, began to feel an obtuse pain in the eye-brow, general lassitude, tension of the abdomen, and loss of appetite. On the 7th of April following, three hours after rising out of bed, he suddenly lost the sight of both his eyes.

The next day he was admitted into the practical school of surgery. On examining his eyes, I found the pupils very much dilated and immoveable to the strongest light, but regular in their circumference, and the bottom of the eye behind the pupil of a deep black colour.

I ordered the patient, without delay, two grains of tartarized antimony, dissolved in four ounces of water, to be taken by spoonsful at short intervals, until it produced nausea and vomiting. The patient having taken the whole of the solution, vomited at three times a very considerable quantity of mucus and bilious greenish matter, so acrid, that for some hours afterwards he complained of an intolerable heat in

in the tongue and fauces. He had alſo, on the ſame day, two colliquative motions; he afterwards paſſed a good night, and the following day found himſelf relieved of the pain in the head and ſupercilium. I ordered him to take the opening powder, compoſed of one ounce of cryſtals of tartar and a grain of tartarized antimony, divided into ſix equal parts, one of which was taken three times a day, and continued for ſeveral ſucceſſive days. The powder produced each time nauſea, and one or two abundant evacuations from the bowels every day, with great relief, not only to his head, but his general conſtitution; ſince after the uſe of theſe opening powders for a few days, he ceaſed to complain of proſtration of ſtrength, and tenſion of the hypochondria. In the mean time I directed him to hold a ſmall veſſel, containing the aqua ammoniæ puræ near his eyes three times a day, until at each time they ſhould begin to water and become red.

During the firſt four days there was no ſenſible alteration in the patient's eyes; but on the 5th day (13th of April) he ſaid, that he could ſee the candle diſtinctly, which was brought near him. The pupils being then examined, I found them a little contracted. The opening powders were continued, but only twice a day.

On the 19th of April, the patient could ſufficiently diſcern the ſurrounding objects in a

moderate light. I found the pupils alſo more contracted than on the 13th, and as the patient had been hitherto kept on a low diet, and found his appetite returning, I allowed him the diet of convaleſcents. In order to ſtrengthen his ſtomach and invigorate his nervous ſyſtem, inſtead of the opening powders, I ordered him thoſe compoſed of ℥j of the cinchona, and ℥ſs of the valerian root, divided into ſix equal parts, of which he took one morning and evening, without ever omitting the uſe of the vapour of the cauſtic volatile alkali. From the 19th of April the patient's ſight improved daily, and on the 22d of May he was diſcharged from the hoſpital in a ſtate capable of following his buſineſs, which he alſo preſently purſued.

## Case LXIX.

Stefano Barbieri, a pale weakly boy, 14 years of age, belonging to the hoſpital for orphans in this city, was attacked in March 1797 with a peripneumony, for which he was freely bled. While he was recovering, he complained that he could ſcarcely diſcern any thing with the right eye, and that he felt occaſionally violent and deep pains in that eye, and the correſponding ſupercilium. Antiſpaſmodics and tonics were preſcribed for him; but without advantage, as the ſight of this eye diminiſhed daily;

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the pupil was contracted and become immoveable, and a ſmall whitiſh line preſented itſelf beyond the pupil, which appeared to be an incipient opacity of the capſule of the cryſtalline lens.

He remained in this ſtate two years, as his left eye ſerved him ſufficiently well; when, in the beginning of September 1799, he was ſuddenly deprived of almoſt the entire ſight of his left eye, with this peculiarity, that on his firſt waking in the morning, he could, with difficulty, diſtinguiſh light from darkneſs. Having examined him, I found the pupil of the left eye greatly dilated and immoveable, while, as I have ſaid, the pupil of the right, already greatly deteriorated, was immoveable and contracted.

I choſe, in this caſe, to try the effect of the pulſatilla nigricans. I ordered the patient to take three grains of it morning and evening; I then increaſed it half a grain twice a day, until the boy took nine grains of it night and morning. At the end of 15 days I was obliged to omit this remedy, as it was attended with no advantage to the ſight, and occaſioned violent pains in the head, vertigo, and little leſs than general convulſions. I was contented to do nothing till the 24th of December of the ſame year, when I purſued the following plan of treatment.

I prescribed two grains of tartarized antimony dissolved in four ounces of water, of which the boy took a table spoonful every half hour. After he had taken about three parts of the medicine, he vomited half a bason full of greenish, bilious, tenacious matter, and towards night had two alvine evacuations. He passed a good night, and on awaking the following morning distinguished the objects near him, and the persons who passed through the ward; which he had not been able to do for some months before. I immediately put him upon the use of the opening powders, composed of ℥j of crystals of tartar, and gr. ij of tartarized antimony, divided into eight equal parts, of which he took three a day; and these powders produced nausea and two evacuations regularly every day. The vapour of the caustic volatile alkali was used with the greatest diligence three or four times a day.

On the 1st of January, an hour after having taken the first opening powder, the boy vomited violently, and threw up a large quantity, as at first, of greenish viscid bilious matter. The medicine was suspended for that day, and was afterwards reduced to two doses only of the powder, one morning and evening, until the 8th of January.

At this time the boy could distinguish objects very well with the left eye, the pupil of which was less dilated than before, and showed some mobility on being exposed to a strong light.

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The pupil of the right eye remained as at firſt, contracted and immoveable; and the boy could diſtinguiſh light from darkneſs. He had not the yellowiſh livid appearance in his countenance that he had before, and felt a good appetite.

I had now recourſe to Schmucker's opening pills, of which the boy took four morning and evening, without omitting the frequent uſe of the vapour of the cauſtic volatile alkali. The pills produced nauſea for a few minutes, and afterwards purged him twice a day, without occaſioning debility.

On the 16th of January he was ſeized with a diarrhœa, without any evident cauſe; it was therefore neceſſary to ſuſpend the opening pills, which were, however, reſumed on the 22d, but in half the doſe; and as theſe alſo purged him too much, they were employed every ſecond day, without omitting the uſe of the vapour of the aqua ammoniæ puræ.

On the 9th of February, the boy finding the ſight of his left eye tolerably re-eſtabliſhed, left the houſe without leave, on a very rainy day, and returned completely wet from head to foot. This occaſioned, two days afterwards, a continued fever of the remittent type, which was removed with the cinchona conjoined with valerian. The left eye, however, even in the ſtrongeſt

ſtrongeſt paroxyſms of the fever, retained its vigour.

On the 26th of February I left the boy in a good ſtate of health, both with reſpect to his general habit and the ſight of the left eye, with which he could diſtinguiſh the ſmalleſt objects. The right eye remained imperfect, as it was at the commencement of the treatment.

## Case LXX.

Giovanni Sciguagni, a carrier, about 30 years of age, a man of a ſtrong temperament and good habit of body, in 1791 was ſeized one morning, as he was going out of church, with a weakneſs of ſight in both his eyes, which progreſſively increaſed to ſuch a degree, that in a few minutes he found himſelf completely blind.

Being brought to the hoſpital, his countenance appeared flushed, his pulſe was hard and full, the conjunctiva was ſtreaked with ſome blood veſſels, and the pupil dilated and immoveable; he complained of no inconvenience except the blindneſs.

Blood was taken from the arm, and afterwards 14 leeches were applied to the temples, and the anterior circumference of the neck, from which an abundant diſcharge of blood was obtained; the patient was at the ſame time ordered

dered a proper diet, aqueous drinks, and a purgative. By theſe meaſures a diminution of the ſtrength of the body generally was obtained, but no advantage with reſpect to the blindneſs.

The next day two ſinapiſms were applied to the feet, and a large bliſter to the neck, which were of no benefit. On the 4th day of the diſeaſe he took, in ſmall quantities, a pint of the decoction of arnica, and at night a pill made with the extract of arnica and the pulſatilla nigricans. But as theſe remedies, which were daily increaſed in doſe, produced no advantage in the ſpace of 15 days, although continued with diligence and exactneſs, recourſe was had to Schmucker's pills.

At the end of ſix days, the patient experienced a ſmall degree of relief from theſe pills, which gradually increaſed every day, and in the ſpace of 27 days he recovered his ſight perfectly, which remained good for two months; but afterwards relapſed in conſequence of his indulging in indigeſtible food and ſpirituous liquors.

This ſecond time, after having a ſmall quantity of blood taken from him, he reſumed the uſe of Schmucker's pills, and by thoſe only, without any external application, except cold lotions to the eye, he recovered in the courſe of 32 days, and had no further relapſe.

CASE

## Case LXXI.

Giuſeppe Antonio Goſſi, of Stradella, 60 years old, of a lively and ſtrong temperament, was attacked towards the end of 1794, with an obſtinate quartan fever, with which he was ſo afflicted for 13 months, notwithſtanding the means which were employed, that on the final ceſſation of it, five months of good living were ſcarcely ſufficient to put him in a tolerable ſtate of health. At this time, his former ſtrength not being yet perfectly re-eſtabliſhed, he began to ſee black ſtreaks before the left eye, which gradually increaſing, in the ſpace of 15 days he was completely deprived of the power of ſeeing with that eye. Some medicines which were preſcribed for him rendered his ſight a little better, but it was of ſhort duration; and he continued ſometimes loſing almoſt entirely the ſight of the left eye, at other times regaining it ſo as to be able to walk without danger.

He paſſed ſeveral weeks in this ſtate, alternately better and worſe, and in the hope that nothing further would enſue: the right eye remaining ſound, he was unwilling to ſubmit to any further treatment; when ſuddenly the ſight of the right eye alſo became ſo diminiſhed, that in a few days he found himſelf reduced to the neceſſity

neceſſity of being conducted, in order to walk with ſafety.

All the remedies which are adminiſtered on theſe occaſions being found ineffectual, and the patient reduced alſo to the greateſt diſtreſs, by being deprived of the employment by which he gained a livelihood, he came on the 8th of June 1796 to this city for relief.

On an attentive examination the pupils were found exceedingly dilated and immoveable, and the bottom of the right eye, beyond the pupil, was very dark.

On account of the diſorder, principally of the organs of digeſtion, increaſed by violent affections of the mind, with which the patient for ſome months had been exceſſively agitated, four grains of tartarized antimony diſſolved in eight ounces of water were preſcribed for him, of which a large table-ſpoonful was to be taken every two hours. The firſt doſe of this ſolution excited only nauſea. It was repeated the following day, and he had ſcarcely taken ſix ſpoonsful of it when he was ſeized with a violent vomiting, by which he threw up a large quantity of very bitter yellowiſh-green mucus, and had two alvine evacuations.

On the 11th I preſcribed 16 grains of the antimonium tartarizatum diſſolved in 12 ounces of peppermint water, with the addition of ℥ſs. of the ſyrup of orange-peel; of which a ſpoonful

spoonful or two was to be taken three times a day. He was also ordered to drink, now and then, in small quantities, during the day, an infusion of a dram of the folia arnicæ in a pint and a half of water. On the two first days, a few hours after having taken one or two spoonsful of the solution of tartarized antimony, he vomited more or less bile; but afterwards the medicine only excited nausea.

On the 14th the black streaks which appeared before the left eye began to be dissipated, and in a few days were entirely lost. The pupil of both eyes became a little moveable, and on the 12th day from the commencement of the treatment, he was already able to distinguish very large objects.

The solution of the tartarized antimony was now omitted, and he was ordered Richter's opening pills, of which at first he took 15 three times a day; afterwards 18, and lastly 24, never omitting, however, the use of the infusion.

He had not taken the pills 15 days before his sight was strong enough to enable him to walk without a guide; and in about six weeks, by the uninterrupted use of these pills, and the assistance of spectacles, which he used before he was affected with the imperfect amaurosis, he was able to read and write. On examining his eyes at this period, there was no appearance of disease,

diſeaſe, except that the ſight was rather leſs perfect in the left than in the right eye.

The pills produced only nauſea occaſionally, and regularly every day a looſe motion. He was allowed to return home at his own requeſt, upon condition that he would continue to take, at intervals, another entire doſe of the pills. He was not ſubject afterwards to any alteration in his ſight.*

## Case LXXII.

Giuſeppa Pizzi, a girl 16 years of age, of Belgiojoſa, of a delicate conſtitution, who had not yet menſtruated, towards the end of May of this year, 1801, was affected with a morbid appetite, ſo diſtreſſing that ſhe could ſcarcely ſatisfy herſelf by eating every kind of groſs food in large quantity, eſpecially bread made with Indian corn (zea mays). The girl being alſo fatigued by the hard labour of the country, to which ſhe had not yet been ſufficiently accuſtomed, perceived that her ſight became dim. Her immoderate appetite ſuddenly ceaſed; ſhe had a bitter taſte, and began to feel a ſenſe of weight in the region of the ſtomach, accom-

* The progreſs and treatment of this diſeaſe is perfectly known to *Volpi*, a ſkilful and expert ſurgeon of this hoſpital.

panied

panied with nauſea and continual head-ach; ſhe then loſt the ſight of the right eye entirely, and in a great degree that of the left. The pupil of both eyes was exceedingly dilated, and almoſt immoveable to the ſtrongeſt light, and ſhe alſo appeared as if ſhe had an incipient ſtrabiſmus. In this ſtate ſhe was brought into the practical ſchool of ſurgery, on the 4th of June 1801.

On the 4th of June the girl took a table ſpoonful of a ſolution of four grains of tartarized antimony in five ounces of diſtilled water, which occaſioned great nauſea for a long time; but ſhe only vomited a little viſcid whitiſh matter.

On the 5th, the emetic was repeated, and given in the ſame manner. It produced a more copious vomiting than on the preceding day; but always of mucous whitiſh matter. The pain in the head was, however, greatly diminiſhed, as well as the ſenſe of weight in the region of the ſtomach. The nauſea, however, and furred tongue ſtill continued. The pupil appeared a little moveable to a very vivid light, and when the left eye was covered, the patient could diſtinguiſh whether it was light or dark. She began to uſe the vapour of the aqua ammoniæ puræ, which was repeated every two or three hours.

On

6th. Little pain in the head; the taſte leſs bitter than on the preceding days; the pupil acquires ſome mobility. The opening powders are preſcribed, of which the patient takes three in the day, and continues to apply the vapour of the cauſtic volatile alkali to the eyes every two or three hours.

7th. Very little pain in the head. The opening powders produce nauſea for a few hours; afterwards two abundant evacuations in the courſe of the day. The pupil contracts a little, and the patient can diſtinguiſh the figures of large objects.

8th. The pain in the head is entirely gone, as well as the bitter taſte and furred ſtate of the tongue. The pupil is more ſenſible to the impreſſion of the light than on the preceding day.

9th, 10th, 11th, and 12th. The patient continues to take the opening powders, and to uſe the vapour of the cauſtic volatile alkali externally.

13th. The patient complains again of headach and bitter taſte, and the tongue is furred. Inſtead of the opening powders I ordered her an emetic, compoſed of half a dram of ipecacuanha, and one grain of tartarized antimony, to be taken at once. The patient vomited much yellowiſh-green matter. The head-

ach immediately ceaſed, and the girl could then diſtinguiſh ſufficiently well the objects that were preſented to her. She continues the uſe of the vapour.

14th. She is very well. The pupil of the right eye, or of that moſt affected with amauroſis, is even more contracted than that of the left.

15th. The patient reſumes the uſe of the opening powders, and continues to employ the vapour of the cauſtic volatile alkali externally.

16th. There is a gradual amendment. The patient can diſtinguiſh a ſmall needle with the right eye.

17th, 18th, 19th, and 20th. The opening powders produce daily two abundant evacuations, without debilitating the patient. She has a good appetite and digeſtion.

21ſt. The uſe of the opening powders is omitted, and the decoction of cinchona with the infuſion of valerian root, taken in doſes of three ounces three times a day, ſubſtituted in place of them.

22d, 23d, 24th, 25th, 26th, and 27th. The girl can ſee the moſt minute objects as well with her left as her right eye. She acquires a healthy complexion; and the ſtrabiſmus has almoſt entirely diſappeared.

28th. She leaves the hoſpital perfectly cured. She is adviſed, however, to continue the uſe

of

of the vapour for a week longer, and internally, morning and evening, a powder compoſed of a ℈j of the cinchona, and ʒſs of valerian; and alſo to obſerve a regular diet, and to avoid the burning rays of the ſun.

## CHAP. XX.

### OF A CALCULOUS CONCRETION OF THE INTERNAL PART OF THE EYE.

AMONG the very conſiderable number of diſeaſed eyes, which the friendly condeſcenſion of Dr. Monteggia, a celebrated phyſician and ſurgeon of Milan, has afforded me an opportunity of examining, I have found one almoſt entirely transformed into a ſtony ſubſtance.*

This eye, taken from the body of an elderly woman, was about one half the ſize of the ſound one. The cornea was duſky, behind which the iris appeared of a ſingular figure, being concave, and without foramen or pupil in the middle. The reſt of the eye-ball, from the termination of the cornea backwards, felt unuſually hard to the touch.

By making an inciſion I found the ſclerotica† and the choroidea‡ nearly in a natural ſtate, and a ſmall quantity of limpid fluid iſſued from the

* Plate II. fig. 8. † Plate II. a. a. ‡ Plate II. b.

anterior

anterior chamber of the aqueous humour. Beneath the choroid coat there appeared two hard calculous *ſcutellæ*, united together by means of a compact membranous ſubſtance; one of which was ſituated poſteriorly, the other anteriorly. The former * occupied the bottom of the eye; the latter † the ſituation of the corpus ciliare and the cryſtalline lens.

Having made an inciſion through the compact membrane, which united the margins of the two calculous *ſcutellæ*, I found within this cavity, inſtead of the vitreous humour, ſome drops of a glutinous bloody fluid, and along the axis of it a ſmall ſoft cylinder, ‡ which running anteriorly from the bottom of the eye along the greater axis of the ball, went to be implanted in an elaſtic cartilaginous ſubſtance, ſituated in the centre of the anterior calculous *ſcutella*, preciſely at the part, which, in a natural ſtate, is occupied by the cryſtalline lens and its capſule; both of which parts were entirely wanting.

The poſterior ſurface of the iris had contracted a firm adheſion with the middle part of this cartilaginous ſubſtance, ſituated in the centre of the anterior calculous ſcutella; conſequently when the iris was viewed on the ſide next the cornea and anterior chamber of the aqueous hu-

* Plate II. c. c. † Plate II. d. d. ‡ Plate II. f.

mour, it appeared, as it was in reality, concave in the middle.

The optic nerve degenerated into a thread, paſſed through the ſclerotic and choroid coats,* advanced through the centre or bottom of the poſterior calculous *ſcutella*, and was loſt in the ſmall ſoft cylinder,† which, as I have ſtated, went to be inſerted in the cartilaginous ſubſtance, ſituated in the centre of the anterior calculous ſcutella, or in the part which is naturally occupied by the cryſtalline lens and its capſule. The greater part of this ſmall cylinder, eſpecially near the ciliary body, was apparently nothing more than the membrane of the vitreous humour emptied of its fluid, waſted, contracted, and converted into a compact ſubſtance. The ſame thing was obſerved in the diſſection of the dropſical eye before mentioned.‡

Haller has met with a fact ſimilar to this, and has given us the deſcription of it, which, from its great reſemblance to the one here detailed, is worthy of being related and confronted with it.

*In furis cadavere*, ſays he,§ *quod an.* 1752, *diſſecuimus, diritas quidem non tanta, raritas autem etiam major fuit. Cum enim in eo homine nervos oculi ſolicite pararemus, cæcum fuiſſe eo la-*

* Plate II. e. † Plate II. f. ‡ Page 294.

§ Obſerv. Patholog. oper. min. obſerv. 65.

*tere,*

*tere, atque in cicatricem in cornea esse, et duritatem in oculo ipso adparuit. Cum dissectione defuncti essemus, adparuit mira mali causa. Choroideæ membranæ subierat, retinæ loco, lamina ossea, aut lapidea (nam fibras osseas nullus vidimus), cui ipsa choroidea adhærebat, ut alias retinæ solet concentrica, hemisphærio cavo similis, nisi quod duplici lamina fieret, et in altero latere duobus quasi loculis excavaretur. Is quasi scyphus accurati rotundo foramine perforabatur, qua nervus opticus subit, ut eo magis induratam retinam esse adpareret.*

*Intra hanc osseam caveam multum vitreum legitimum corpus, sed nervum, quasi albam nempe cylindrum riperimus quæ per foramen ossei cyathi transmissa metiens ejus diametrum denique adhærebat osseo confuso corpori, quod potuisses pro corrupta lente crystallina habere. Ei corpori undique et iris, et processus ciliorum cognomines connascebantur, et cornea denique, ad quam iris pariter conferbuerat. Nunc sive retinam, ut ego persuadeor, sive quidquam aliud fuisse velis, quod in os cavum et hemisphæricum mutatum sit, in oculo tamen tenerrima parte corporis humani indurationem perfectam natam esse adparet; nihil ergo in corpore nostro dari, quod indurari nequeat. Lapillos aliquos in lente crystallina repertos fuisse legi; ejusmodi autem morbus, nescio an visus sit, qualem hæc opportunitas nobis obtulit.*

Distinct mention is made of calculous concretions of the internal part of the eye, by F. d'Hildanus,* Lancisi, as quoted by Heister,† Morgagni,‡ Morand,§ Zinn,‖ and Pellier.¶

* Centur. I. observ. 1.

† Vindiciæ de cataracta, page 97.

‡ De sed. et caus morb Epist. 13. 9. Epist. 52. 30.

§ Mem. de l'Acad. R. de sciences an. 1730.

‖ Hamburg, Magaz. De retina ossificata, 19. B.

¶ Recueil de mem, et obs. sur l'œil, obs. 239.

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TIGHT GUTTER